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AMERICAN PODIATRY ASSOCIATION

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House of Delegates, August 27, 28, 31

SCIENTIFIC SESSIONS

AUGUST 29, 30, 31, SEPTEMBER 1

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APRIL, 1959

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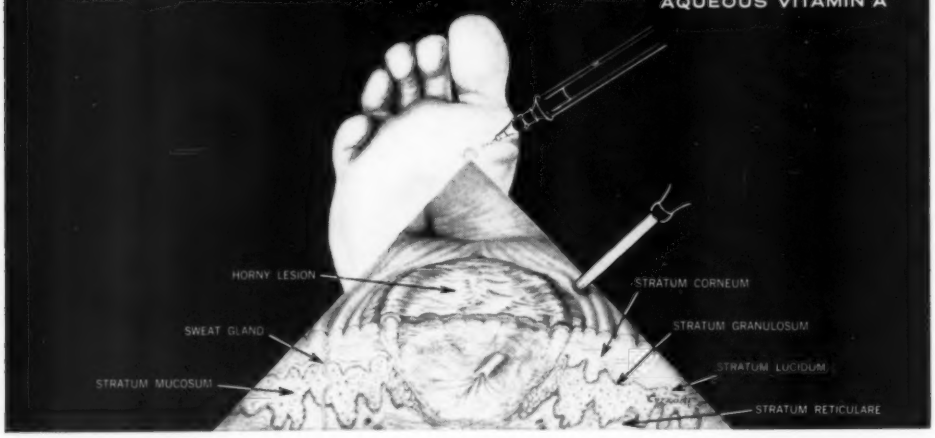

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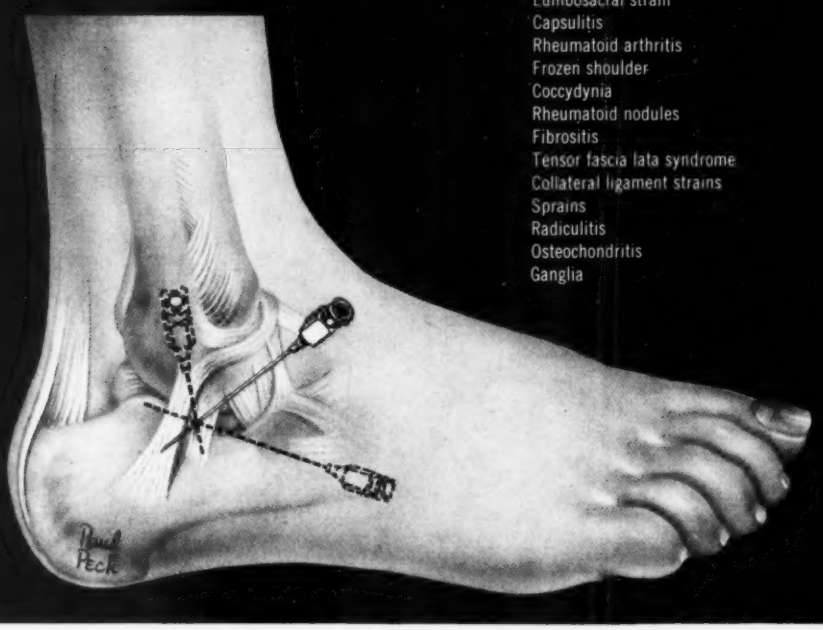

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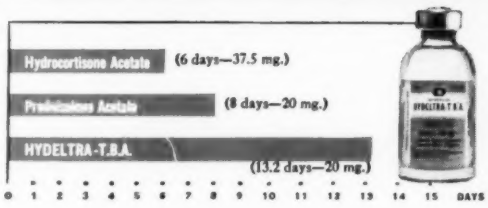
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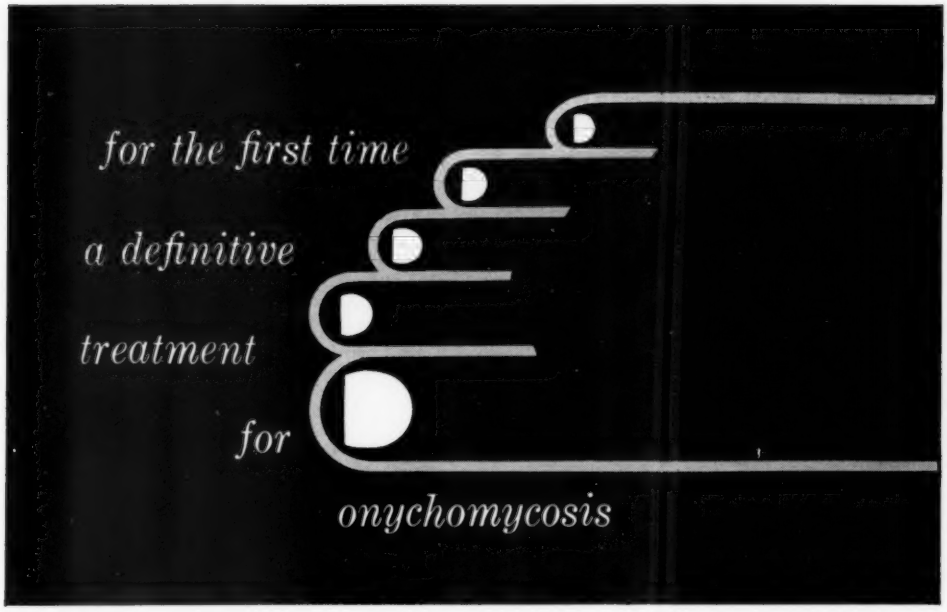

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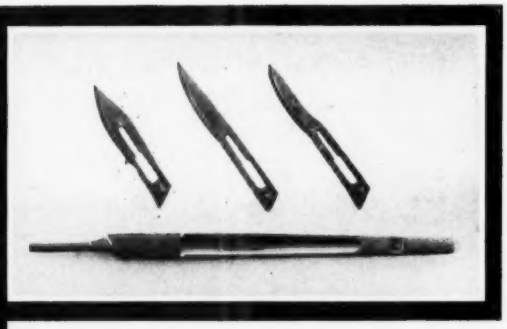

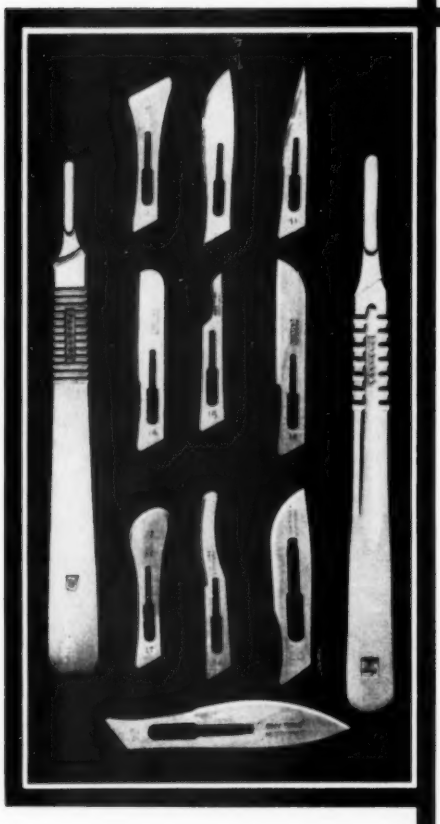

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The Indiana State Board of Podiatry Examiners will meet for examination on June 18-19, 1959, at the Indiana University Center, Indianapolis, Ind. **Board Secretary:** P. T. Lamey, M.D., 422 Citizens Bank Bldg., Anderson, Ind.

Iowa
The Iowa State Board of Chiropody Examiners will meet for examination June 8-10, 1959, at the State Office Building, Des Moines, Iowa. **Board Secretary:** Dr. C. C. Reinheimer, 111 W. 2nd St. South, Newton, Iowa.

Kansas
The Kansas State Board of Podiatry Examiners will meet for reciprocity and examination June 5-6, 1959, at Kansas University Medical Center, Kansas City, Kans. **Board President:** Dr. L. E. Krause, 1107 Williams St., Great Bend, Kansas, or Kansas Board of Podiatry Examiners, 872 New Brotherhood Bldg., Kansas City, Kansas. **Board Secretary:** F. N. Nash, M.D., 864 New Brotherhood Bldg., Kansas City, Kansas.

Kentucky
The Kentucky State Board of Chiropody meets on the third Saturday and Sunday of June and the first Saturday and Sunday of December each year. The December meeting is for re-examination only. Board Secretary: Dr. Chester A. Nava, 602 Starks Bldg., Louisville Ky.

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Louisiana State Board of Medical Examiners. **Board Secretary:** Edwin H. Lawson, M.D., 930 Hibernia Bank Bldg., New Orleans 12, La.

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The Maryland Board of Chiropody Examiners. **Board Secretary:** Dr. S. Jack Kleger, 408 S. Division St., Salisbury, Md.

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The next board meeting of the Board of Registration in Chiropody-Podiatry will be held for reciprocity, conditionally, and examination, June and December, at the State House, Boston, Mass. Board Secretary: Dr. Fred T. Reiss, Ritz Carlton Hotel, Boston, Mass.

Michigan
The Michigan State Board of Registration in Chiropody will meet for examination in June of each year. **Board Secretary:** Dr. Walter J. Jeffery, 1950 Madison Ave., S.E., Grand Rapids, Michigan.

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The New Hampshire Board of Registration in Chiropody. **Board Secretary:** Edward W. Colby, M.D., 61 S. Spring St., Concord, N. H.

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The New Jersey State Board of Medical Examiners meets semi-annually for examination on the third Tuesday, Wednesday, Thursday and Friday of June and October. The next examination will be held in January 1959. **Board Secretary:** Royal A. Schaaf, M.D., 28 West State St., Trenton 8, N. J.

New Mexico
The New Mexico State Board of Chiropody will meet for examination on July 11, 12, 1959, in Albuquerque, N. Mex. **Board Secretary:** Morris Haas, D.S.C., 121 Sycamore St., N. E., Albuquerque, N. M.

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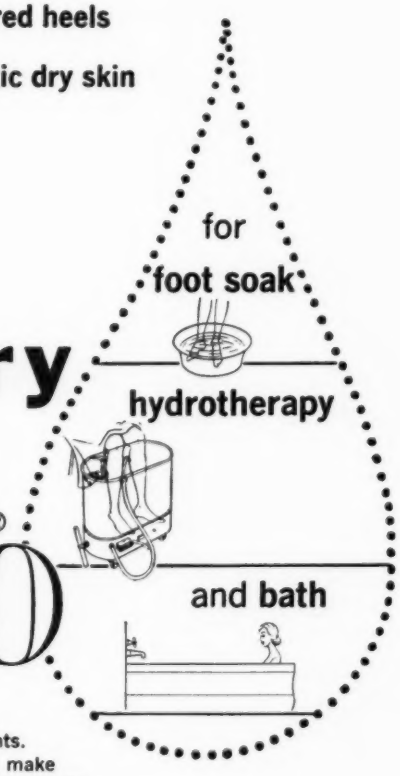

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1. Prentice, H. and Brezak, S.: Jrnl. Amer. Podiatry Assn. 48:191, (May) 1958.
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The North Carolina State Board of Chiropody Examiners. **Board Secretary:** Robert W. Getchell, D.S.C., P.O. Box 796, Goldsboro, N. C.

North Dakota

The next board meeting of the North Dakota Board of Registration in Chiropody will be held for reciprocity and examination at call at 301 Black Bldg., Fargo, N. Dak. **Board Secretary:** Joseph E. O'Brien, D.S.C., P.O. Box 872, Bismarck, No. Dak.

Ohio

The Ohio State Medical Board. **Examiner in Chiropody:** Dr. H. L. Collins, 318 East State St., Columbus, Ohio.

Oklahoma

The Oklahoma State Board of Chiropody will meet for examination, Sept. 12-13, 1959 at 1217 N. Walker St., Oklahoma City, Okla. **Board Secretary:** Dr. Warren D. Long, 1217 No. Walker St., Oklahoma City, Okla.

Oregon

Oregon State Chiropodists Examining Board. **Board Secretary:** Harold M. Erickson, M.D., 1400 S.W. Fifth Ave., Portland 1, Oregon.

Pennsylvania

Pennsylvania State Board of Chiropody Examiners will meet for examination July 15-16, 1959. **Board Chairman:** Dr. Ralph H. Orr, 424 Colorado Drive, Erie, Pa. **Board Secretary:** Dr. Jack S. Pincus, 26 N. Third St., Harrisburg, Pa.

Rhode Island

The Rhode Island Board of Examiners in Chiropody. **Administrator:** Thomas B. Casey, 366 State Office Bldg., Providence, R. I.

South Carolina

The South Carolina Board of Chiropody Examiners. **Board Secretary:** Dr. Charles W. Clark, 535 Harden St., Five Points, Columbia, South Carolina.

South Dakota

The South Dakota State Board of Chiropody Examiners will meet at the discretion of the Board. **Board Secretary:** Dr. Fred D. Rule, 204 Kresge Bldg., Sioux Falls, S. D.

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The Tennessee Board of Registration in Chiropody. **Board Secretary:** Dr. Arthur Richert, 3355 Poplar St., Memphis, Tenn.

Texas

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The Utah State Board of Chiropody Examiners. **Board Secretary:** Ward A. Burbidge, 1015 Medical Arts Bldg., Salt Lake City, Utah.

Vermont

Vermont Chiropody Association will meet for examination in June 1959 at the University of Vermont College of Medicine, Burlington, Vt. **Board Secretary:** Gray S. Clark, Service Bldg., Rutland, Vt.

Virginia

Virginia Board of Medical Examiners will meet for examination June 1959 at Richmond, Va. **Board Secretary:** Kenneth D. Graves, M.D., 1800 E. Washington St., Charleston, W. Va.

Washington

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Medical Licensing Board of West Virginia. **Board Secretary:** N. H. Dyer, M.D., 1800 E. Washington St., Charleston, W. Va.

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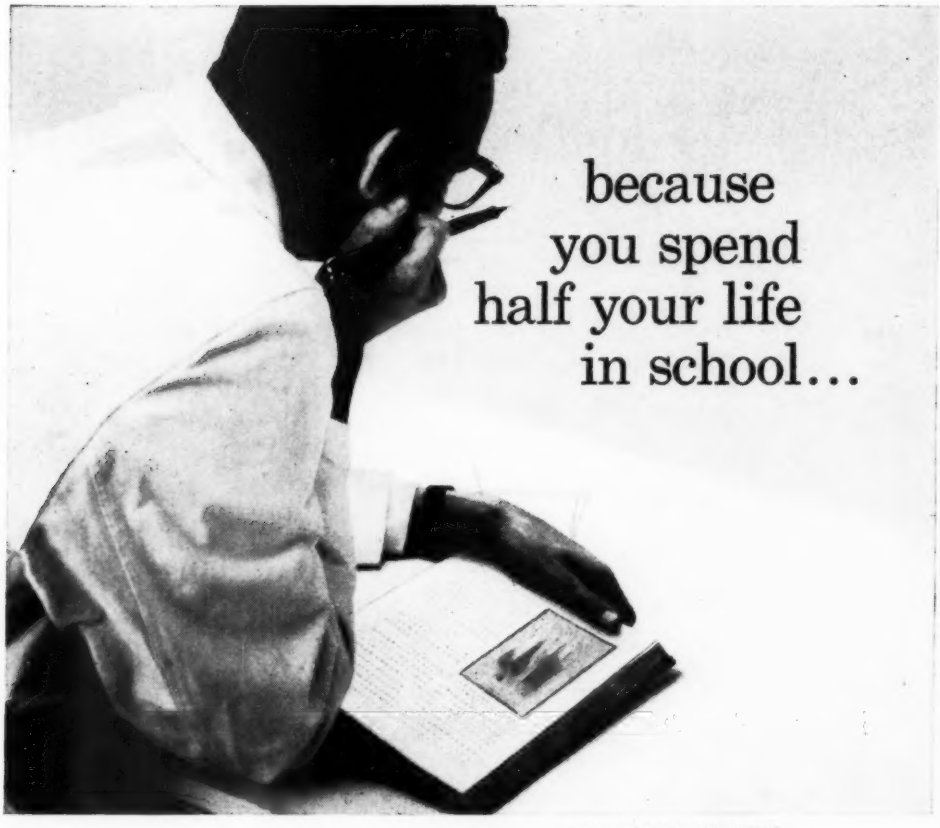

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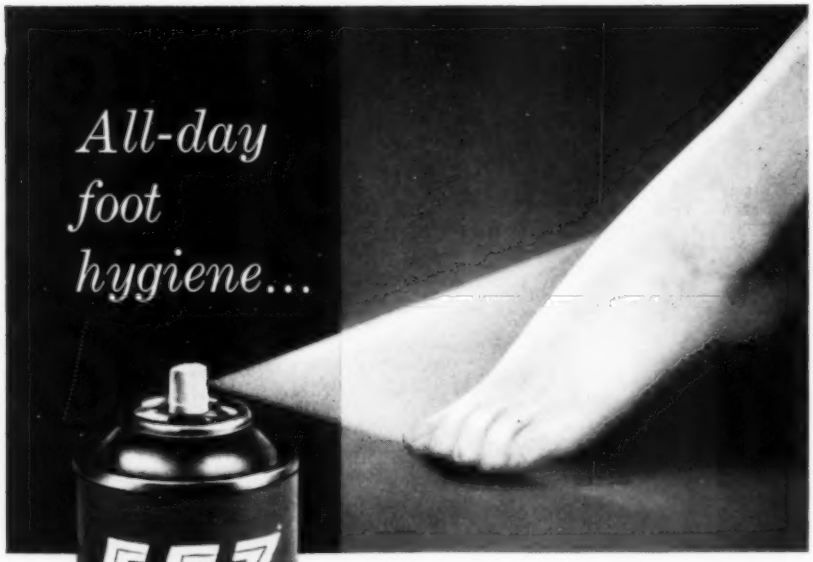

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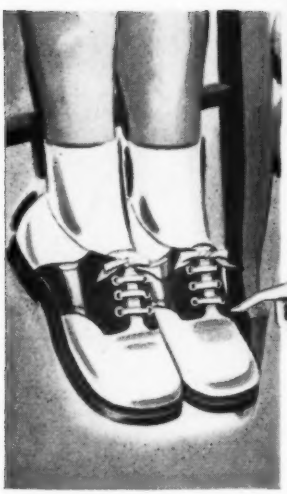

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THE OFFICIAL PUBLICATION OF THE PODIATRY-CHIROPODY PROFESSION

VOLUME 49 APRIL, 1959 NUMBER 4

THE NORMAL FOOT*

MILTON HENENFELD, Pod.D.
New York, N. Y.

THE bony structure of the foot of today is essentially the same as that of the four-footed animal, and derived from the same ancestry. The alteration in structure and function is due to change in position of the body and the work loads the structural components of the foot had to assume in their new relationships. The work load was altered by stresses applied in an entirely new and different manner.

There are two schools of thought regarding the dynamic changes which brought about bipedal orthograde progression. One school, widely entrenched, believes that total adaptability to the altered mode of progression has not yet been reached, and that the foot has not attained the adequate weight-bearing structure it is eventually to become. Therefore, owing to the incompleteness of the change-over, the foot is inherently weak in certain aspects. The other school[1] of more recent origin, and less widely accepted, believes that the foot has evolved as a weight-bearing structure from the very outset, and that it is inherently strong and capable of withstanding the stresses and strains of modern living. According to this theory, the changes are not comparatively new, but began when the upright position was first assumed and continued uninterruptedly in the terrestrial bipedal functioning organ until, as it is now constituted, it is a structure well adapted to its environment. The foot, therefore, never passed through an arboreal stage.

These differences in concept are of major importance in relation to pathology, diagnosis, and treatment. If the theory of the first school is accepted, then the inherently weak characteristics represent environmental changes long past, and the present form and functioning are the results of a foot not yet completely adapted to weight bearing. According to this concept, we can place the blame for structural and functional foot ills upon the past. Obviously, such weaknesses can be overcome only by the ultimate completion of the evolutionary process, a condition which never quite takes place. Therefore, the foot must be thought of as either weak or strong. If the second school of thought is accepted, that the foot is completely adapted to weight bearing, then we must look to present conditions for its disabilities.

The important difference between these two concepts, then, is that in the first, changes in the foot were effected through past environmental factors, whereas in the

*Submitted in William J. Stickel Annual Awards for Research in Chiropody (Podiatry) 1958. Presented at the Annual Meeting of the A.P.A., Washington, D. C., August 1958.

other, these environmental influences are continuous. If the evolutionary process is considered continuous, confusion arises in regard to therapeusis. Shall the foot be supported or not; if so, how? Might there not be danger of interfering with the evolutionary process? In the second concept, the question of support does not arise, since the foot needs none—all that is required is relief of temporary excessive stress and strain placed upon it by its environment.

Whether the foot is strong or weak depends upon its function as well as upon its form. A weak structure cannot function normally.

Function of the Foot

The functions of the foot are usually considered to be standing, walking, running, etc., but all of these are *actions* which the foot is capable of performing. In general usage the words function and action of the foot are generally used interchangeably, inferring the same meaning. But function and action necessarily have separate and distinct meanings, because the foot is an animate object with the ability to move. A part of the foot may have a function, but it need not act. The function of a foot is the same in a paralyzed and a non-paralyzed individual, yet the ability to act exists in the latter and not in the former. Function, therefore, is the *power* belonging to an agent, whereas action is the *deed*—the effects resulting from the exertion of power. The definition of the foot's function must include all of its capabilities, not in terms of its acts, but in terms of the power or means by which these acts are performed.

The specific power of operating that belongs to the foot is weight bearing. However, the weight borne by the body does not end in the foot, but continues into the ground. The foot is the final means whereby the stresses of body weight reach the ground and its function of weight bearing is in the same relationship with the ground as one vertebra is to the vertebra below it, or the femur is to the tibia. The foot in order to function must bear weight, but its function to bear weight is no more than that of any other bone in the body.[3]

When weight rests in the spine it is dependent upon some counter-resistance to support it—in this instance, each vertebra, one beneath the other. The entire load in turn is supported by the hip, the femur, the tibia, and finally the foot, if the foot is in contact with the ground. The foot in contact with the ground, therefore, is supported by the ground, as everything above it. When the body is suspended in mid-air, the foot is bearing the body weight, but it is not supporting the body weight. Without counter-resistance from the ground, no base can support the structure above it, whether it is a human body or a statue. The counter-resistive forces to the base of any structure must be equal to the gravitational stresses placed upon it, or the structure will sink, as happens in quicksand, or it will cease to sink, as happens in sand or mud.

The foot cannot feel the body weight without the ground contact and the counter-forces acting against it; therefore, it is the *ground* which supports the body and its weight, and not the foot.

It is further apparent that the foot itself must offer static resistance in order not to collapse under these forces. This resistance is supplied by the rigid framework of the foot. Unless the foot is rigid enough to oppose the upward thrust from the ground against the downward thrust of body weight, and if it is not braced" to this effect, it will collapse. Since many members of the "entrenched" school believe the foot does not collapse, this supposedly is proof of the argument of support. Collapse, were it to occur, does not indicate that the foot has given way beneath the load of weight, and therefore is unable to sustain it; despite the collapse, it still is capable of support-

ing the weight load of the body. A collapse does not indicate that the foot has lost its ability to support, but that it no longer acts as a proper medium between the ground and body—that is, it cannot act as a means whereby the forces from above and the forces from below can meet and be equalized. Actually, the foot is the means wherein, because of its rigidity, two opposing forces of equal degree meet and are dissipated without shock, leaving the foot free to perform its various actions with a degree of stability, yet possessing a considerable amount of flexibility.

If the foot does not bear weight, if it is not the support of the body, then what is its true function? Since, as pointed out earlier, each vertebra of the spine, as it rests upon the one below, transmits the weight to the areas beneath, until eventually all the weight reaches the foot, and from there transmitted into the ground, the foot has the specific mechanism for transmitting the body weight to the ground. This is the specific function of the foot, and of the foot alone. This is a fact common to all feet. *The function of the foot, therefore, is to transmit weight to the ground in such a manner that the counter-resistive forces of the ground surface can be equalized, leaving the foot free to act as a lever to effect the actions within its capacity.*

To describe how the foot functions, it must be determined how the weight stresses are transmitted by way of its various components to the ground, and how it is constituted to resist the counter-forces set up within it. The foot must be studied in relation to the various acts which such function makes possible—particularly stance and locomotion.

When transmitting body weight to a supporting surface, the foot acts as a static structure: the body weight reaches the ground through specific channels predetermined by the specific structure in the individual foot. The foot further acts as a lever in order to produce motion and to lift, so that locomotion can take place—an act which represents weight transmission through the same predetermined channels and set patterns, *but performed in a different manner.* Stance and locomotion, although both are based upon transmission of weight to the ground, differ one from another, and differ also from any other action of the foot. Thus, one can leap, run, dance, climb, walk on the sole or on the toes, stand upon the heels, turn about, and do any one, or any combination of numerous different acts. The function is always the same; the actions differ only in the manner in which weight is transmitted to the ground through established channels of weight distribution. Considered in this way, even the intricacies of dancing are easy to understand.

The weight stresses passing into and through the foot, which are the same in all feet, are measurable in determination of the norm. The mechanism within the foot which accepts the counter-forces can also be determined. There, structural relationships are the result of function, and thus indicative of it. In the foot which has the power to act at optimum in all its capacities, these structural relationships when present will define the normal.

Weight Transmission Through The Foot

The inner structure of bone reflects to a high degree the physical forces acting upon it. The stresses of the body weight are transmitted through the foot to the ground by the way of the trabeculae. Therefore, to determine how weight is transmitted through the foot, and how the foot functions, study of the shape and form of the bones and their relationship one with the other, are of less concern than their internal structure—the trabecular patterns.

The outline of bones is not subject to change as the result of function, whereas the internal structure does change; patterns of trabeculae alter in direction and in-

tensity in direct response to movements of force within the bones.[3] By study of the trabeculae we can determine how weight is being transmitted through any particular bone and, by means of a trajectoral pattern, through any series of bones. Since it is necessary normally that the mechanical stresses pass through the foot in line with the functional axis and the leverage axis of the foot,[4,5] the forces, and therefore the trabeculae, must run in the same direction in which the foot is pointed and the body is moving, for optimum function.

The Trajectoral Lines of Force: The gravitational trajectoral pathways are arranged in accordance with the stresses passing through them, in regard to direction and intensity. The trajectoral lines of force run only in a straight line.[3] Therefore, trajectoral lines pass straight through the bone, or through any series of bones, and can be so depicted. The trabeculae themselves may curve, but the lines of force they represent do not.

Mechanical stress in the body is resolved into three principal stresses acting along three principal axes at right angles to each other, causing the shearing coefficient to disappear. The greatest trabecular strength is obtained when the trabeculae are arranged parallel to the principal axes. The position of the principal axis of a bone can be indicated by drawing lines tangent at every point to the principal axis under investigation.[3] In the metatarsal bones, the trabeculae are arranged parallel to the principal axis of each bone, in line with the direction of the force they represent. Since the stresses must pass forward and backward in a metatarsal (there is no other way to go, the lateral stresses not being weight-bearing ones) the trajectoral lines of force must pass through the length of these bones.

Trajectoral Patterns in Relation to Weight Distribution

If the foot is to function at optimum, properly, and with the least amount of stress on any particular part, and the least amount of fatigue, the structures of the foot must be arranged in balance, so that weight passing through them will have balanced distribution. Stresses in order to be in balance must be equally divided and disseminated, so that one portion of the foot will not bear more weight than another, even though they are mechanically in balance. The foot must also have a mechanism for keeping it in balance whenever the state of temporary equilibrium is disturbed and the stresses become unequal.

The foot can be separated structurally into two equally balanced halves, divided by an "axis of balance."[3] Morton has demonstrated that the gravitational stresses are equally divided in the foot, both fore and aft, at the metatarsal heads and the heel, and from side to side on either side of the "axis of balance." In every foot, then, if it is to be in balance, the gravitational stresses – the body weight – being transmitted through it, must be in equilibrium on both sides of the "axis of balance." Therefore, in the distribution of mechanical stresses, the course of the trajectoral channels should pass on both sides of the "axis of balance."

Trajectoral Channels of Weight Transmission: The trabeculae are arranged in three main channels of weight transmission. (1) The posterior trajector channel: talus to calcaneus, to the ground. (2) The medial trajectoral channel: talus to navicular, to cuneiforms, to metatarsals one, two and three, to the ground. (3) The lateral trajectoral channel: talus to cuboid, to metatarsals four and five, to the ground.

Posterior Trajectoral Channel: The posterior trabecular channel passes through the talus from the focal point of weight acceptance at the tibia to the lower surface of the talus, and then passes uninterrupted into the calcaneus. These trabeculae are separate and distinct from those of the long system which they cross at right angles.

The posterior channel is concerned with the stresses which pass through the heel to the ground. The long system represents the stresses concerned with the bracing action of the foot. A secondary trabecular system in the talus arises from the lower surface and, crossing the long system at right angles, is concerned with the pressure lines in extreme dorsiflexion.

Steindler[6] does not recognize the existence of an independent posterior channel of weight distribution which divides the foot into medial and lateral channels running from the heel to the metatarsal heads. Therefore, trabeculae which are not part of this main system he considers secondary. However, at one point in locomotion, the foot is in extreme dorsiflexion; therefore, Steindler's secondary trabecular system actually is part and parcel of the posterior trajectoral channel.

Medial Trajectoral Channel: The medial trajectoral channel rises from the center of the body of the talus, at right angles to those of the posterior channel which pass into the calcaneus. Since all the stresses are concentrated at one particular point in the talus before being distributed through the foot, this is another constant which is anatomically demonstrable and perfectly dependent at all times. This also is common to all feet. Its mechanical center is the center of the talus between both malleoli. From the talus the trajectoral channel passes in unbroken lines through the neck and head of the talus, thence through the scaphoid, to the cuneiforms, and on into the three medial metatarsals.

The division of the medial and posterior channels is distinct in that these two systems cross one another at right angles in the talus, indicating that the forces are not confluent and, therefore, do not run uninterruptedly from the heel to the metatarsals.

It is notable that the medial trajectoral system is synonymous with the inner arch, just as the lateral trajectoral system is with the outer arch. The division into medial and lateral channels infers that each has its specific function. The trabecular patterns of the lateral system conform to the function of the outer arch, whereas the patterns of the medial system conform to the function of the inner arch.

Lateral Trajectoral Channel: The lateral trabeculae pass through the talus into the cuboid, and on through the fourth and fifth metatarsals. The lateral and medial channels, which transmit the weight forward into the foot, indicate that as the weight of the body is transmitted down into the foot, it is accepted first by the talus, through the center of which they pass. This is the focal point from which the disseminating weight radiates into the three main channels. All heavy stresses of weight bearing and locomotion are absorbed and become disseminated within the body of the talus. The compact arrangement of its trabecular systems, and the small size of its intertrabecular spaces conform with the violence of the stresses which it may be called upon at any time to sustain. The talus plays a salient role physiologically in serving as the radiating center of all stresses transmitted upon the foot.[7]

The three channels, posterior, medial, and lateral, are separate and distinct. In saggital sections of the foot made through division of the metatarsals, the trabecular patterns, as illustrated by Steindler,[6] appear to run from the calcaneus to the talus and then forward into the foot. This is an erroneous impression.

Study of the channels in such sections shows that the trabeculae on the inner side of the calcaneus differ from those on the outer side. The inner trabeculae concentrate in the talus, the outer at the roof of the body of the calcaneus. This concentration in the calcaneus does not mean that

the talus has been circumvented, nor that the stress lines go forward directly from the calcaneus into the cuboid, indicating that weight transmission occurs from the heel along the outer border of the foot. The calcaneus is one bone and its functions cannot be divided in half by any arbitrary line, with one half of the bone having a different function than the other half. When divided into sections corresponding to the medial and lateral channels, this is what apparently happens: The trabecular system must be separated into the three main channels with the concentration of weight in the talus, and not divided into a medial and lateral with the concentration of weight divided between the calcaneus and talus. In the outer section, none or very little of the talus at this point is situated over the calcaneus. The main portion of the talus is over the inner section. Accordingly, no weight can reach the calcaneus via the talus. Obviously, since the calcaneus is one entire bone, weight is transmitted to it, by means of the posterior trajectoral channel.

The concentration at the roof of the body of the calcaneus is concerned with the bracing section of the foot where counter-resistive forces along the outer arch from the calcaneus and the metatarsal heads meet. This concentration point is on the roof of the body of the calcaneus. It has nothing to do with weight transmission through the foot.

The idea of weight transmission must be clarified. It has been believed that the weight passes down into the heel and is then transmitted forward into the foot along the outer border, until it reaches the metatarsal heads.[8] This has never been translated in terms of weight distribution channels, but rather has been explained from weight-bearing imprints made during the course of locomotion. The trajectoral pathways do not bear out this claim, nor does the law of gravity. During locomotion, with all the weight upon the heel of the foot, the forefoot not yet having reached the ground, the weight begins to shift forward. Since this is body weight from above, it is not carried forward along the outer border, nor does it move upward and backward over the same trabecular system in the heel against the force of gravity. A secondary system in the calcaneus meets the principal system running forward from the talus at right angles; it cannot be used for transmitting the weight forward from the heel, otherwise it would combine with the trabeculae of the talus, and run forward with it uninterruptedly. But since there are not channels along the outer border of the foot, we can conclude that body weight is not transmitted forward from the heel. The heel accepts the weight as the first phase of each step, doing so through the posterior channel, and its purpose in this respect ends there.

With the weight shifting forward over the foot, and the heel remaining in contact with the ground, the weight is directed over the focal point in the talus, and from here it is carried forward by the medial and lateral channels. Therefore, there is no functional relationship between the talocalcaneal trabecular systems and the talometatarsal trabecular systems; they are independent.

When standing upon the heels, only one set of trabeculae is used, the posterior channel. When standing on the toes, the medial and lateral channels are employed. These two different actions are accepted by the two different trabecular systems. In locomotion these two separate systems are synchronized, first one acting, then the other.

The significance of saggital sections illustrating the trajectoral patterns through this division is that it corresponds to weight distribution through the five segments, as described by Morton.[4] Since the trabecular patterns do not change, body weight is transmitted through the foot to

the ground in the same manner in every foot. The only difference could be in the amount of weight carried or transmitted through any or all of its bones. As Morton has stated, measurement of pressure at the points where these bones bear upon the ground during the act of standing allows reasonably precise determination of the amount of vertical force transmitted by each bone and through each intervening joint.[7]

Weight is divided equally between the rear contact point (the heel) and the anterior contact points (the five metatarsal heads). The metatarsals one and two are on the medial side and metatarsals three, four, and five are on the lateral side. A line drawn from this point through the center of the heel will divide the load on the foot into two equal longitudinal halves; this is the "axis of balance" of the foot. A vertical plane projected upward from this line passes through the center of the ankle joint where the body's stresses are transmitted upon the foot. The center of the ankle joint is directly over the focal point of the talus; this is the "plane of balance" of the foot.

Since the "axis of balance" divided the foot into two balanced weight-bearing halves, the inner arch apparently carries the same amount of weight as the outer arch. There can be no difference in concentration between the two, since the trabeculae on the outside are no heavier than those on the inner side. The same amount of weight is transmitted on both sides of the "axis of balance"—the same through the medial channels on the inner side and the lateral channels on the other side.

The Normal Foot

The following factors have, therefore, been established as common to all feet: (1) The function of all feet is weight transmission. (2) Weight is transmitted through the trabeculae, the forces running in straight lines parallel to the principal axes. (3) The trabeculae form three main channels of transmission, posterior, medial, and lateral. (4) These channels transmit stresses in balance on both sides of an "axis of balance," which remains constantly unaltered. (5) The trajectoral trabecular patterns remain unchanged, no matter what the action of the foot may be. (6) The forces of weight passing through these channels is met by an equal counter force from the ground.

The normal foot, as defined by Gamble,[9] is "one that maintains integrity through muscular equilibrium and presents an osseous pattern of stability." This pattern of stability depends upon the forces passing through these bones, which must be in balance if they are to maintain stability. Any muscular imbalance will affect the position of the bones, disturbing transmission of the weight from the course of the patterns set for them. This definition has meaning only in terms of *weight transmission*. The writer himself made this mistake in describing the foot in the same general terms as "one which maintains equilibrium upon weight bearing, maintains stability, and has normal bone alignment."

We have established that the normal foot is one in which the gravitational stresses of the vertical position are transmitted to the ground in such a balanced manner that no one bone, or one part or segment, carries an unequal or abnormal portion of the body weight; a foot which can resist the counterforces exerted against it from the ground. The body weight is transmitted equally through the segments on both sides of the "axis of balance" of the foot. In terms of weight transmission, this definition includes all reference to balance, equilibrium, stability, bone alinement, muscular action, etc.

Determination of the Normal Foot: The only problem remaining is to find some means of establishing whether weight is

being transmitted normally to the ground through trajectoral patterns on both sides of the "axis of balance," and whether the weight passing through each side is in balance. As pointed out earlier, weight stresses pass through the bones in straight lines, no matter how curved, bent, or peculiarly these bones are shaped. Knowing the point of entrance and the point of departure of these weight stresses, as well as the pathway between them, then straight lines through these points will correspond to the lines of weight transmission.

Establishing the "Axis of Balance" in Any Given Foot: The functional power of the foot will depend upon weight bearing, since we are dealing with gravitational stresses in vertical position as they pass through the foot into the ground. (The composite full-foot radiogram described by Gamble[2] is excellent for such a study.)

In establishing this "axis of balance" upon the radiogram, three points must be considered: (1) The point between the second and third metatarsal heads; (2) the center of the heel; and (3) the center of the talus. Determination of the midpoint between the second and third metatarsal heads, and the center of the heel contact, can be marked upon the radiogram. The center of the talus is more difficult to locate. The dorsoplantar projection is taken (this being one-half of the composite full-foot radiogram) with the central ray aimed at the head of the talus where the foot meets the ankle at the midline of the foot. By manipulating the ankle joint, the superior surface of the talus can be determined manually. Its center will lie midway between the inner sides of both malleoli. This point can be indicated on the radiogram.

A line joining these three points will indicate the "plane of balance" of the foot. A line joining the heel and the metatarsal points establishes the "axis of balance." It is the latter which is used in the determination.

Establishing the Trajectoral Channels: Straight lines drawn through the talus and ending in the metatarsal heads represent the stress lines in the foot. Drawn upon Gamble's full-foot radiogram, the medial channels will appear on the inside of the "axis of balance," whereas the lateral channels will appear on the outside—in agreement with what has been previously determined. These lines of stress will be seen to converge in the calcaneus. In order for weight to be transmitted equally on both sides of the "axis of balance" these trajectoral lines must be, and must remain, on either side of the balance line. The manner in which they do so will depend on the relationships of one bone to another in any particular foot, but in the normal foot the lines do not cross each other or the line of balance.

Conclusions

As Morton has shown, the stresses passing upward into the foot converge at the talus through the same trabecular system as those passing downward into the foot. Therefore, the trajectoral stress lines may be drawn upon a radiogram through the center of, and parallel with, the long axes of the metatarsals. A straight line should continue back and end in the talus. Therefore, five lines drawn upon the composite foot radiogram, beginning at the heads of the metatarsals and passing through the center of the long axes of the metatarsals, in the normal foot will pass through the talus with the medial channel to the inside and the lateral channel to the outside of the "axis of balance," and will continue backward to end within the confines of the heel. The lines carried back to the calcaneus will also fall to either side of the "axis of balance."

When these trajectoral lines fall on both sides of the line of balance of the foot, as described, then weight transmission through the foot is being properly channeled and such a foot is in a position to

function normally. When the lines cross the "axis of balance" at any point, weight transmission through this particular foot is not being equally distributed. This foot, therefore, is not in balance and is not in a position to function normally.

Further research as to the pathologic implications of abnormal trajectoral channels and patterns should be made and properly evaluated.

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CARE OF OFFICE EMERGENCIES*

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THE widespread use of local anesthesia administration in podiatry-chiropody and injection therapy in treatment of foot conditions must alert the foot specialist to the possibilities of undesirable reactions, allergies and anaphylactic shock.

All local anesthetics are potentially dangerous. We will attempt to review some possible types of complications which may occur with the use of local anesthetics, their causes, signs and symptoms, and methods of prevention and treatment.

Syncope: This condition is generally due to psychic causes, such as fear and apprehension, which bring the patient to a strong emotional state at the time of the surgical procedure. Predisposing factors often aggravate this emotional instability. Some of these are general debility, fatigue, anemia and poor room ventilation. Syncope generally occurs when a sudden emotional reflex causes a temporary cerebral anemia due to dilatation of blood vessels in the splanchnic area. There is a temporary diminution of cardiac output with simultaneous occurrence of a rapid and feeble pulse, pallor, perspiration, and loss of consciousness.

Treatment: Place patient's head at a lower level than the rest of the body by lowering the back of the chair or by placing the head between the patient's knees. Be sure that you remain with the patient while unconscious lest he fall from chair during attack. Administer aromatic spirits of ammonia by inhalation, either by waving bottle under nose or broken ampule of aromatic spirits of ammonia. In syncope, when the patient is revived, spirits of aromatic ammonia may be administered orally, 15 drops in a little water.

Premedication of patients with a syncope history is an effective preventative measure Nembutal®[1] ¾ grain, 30 minutes preoperatively. Some other sedatives that can be used preoperatively are: Seconal Sodium,®[2] Somnalert,®[3] Tuinal,®[2] Sedadex,®[4] Pembules,®[4] to name a few.

Pain: The presence of pain following injection may be due to any of the following causes: (a) Injection into a muscle, liga-

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®[1] Abbott
®[2] Lilly
®[3] Warren-Teed
®[4] Novacol

ment or blood vessel. (b) The use of a non-isotonic solution. (c) The presence of irritants in the solution such as preservatives. (d) Use of a contaminated solution. (e) Injection done too rapidly, causing sudden tissue distention. (f) Injection of a very cold solution. (g) Numerous needle punctures. (h) Use of dull or defective needles. The above or aforementioned causes should naturally be avoided, for obvious reasons.

Treatment: Aspirin or A.P.C. tablets should be administered orally in 5 to 10 grain doses to alleviate the pain. Every 3 hours is a good interval. An initial dose of codeine ½ to 1 grain in severe pain or aspirin with codeine is very effective.

Infections: Infections ranging from those causing post-operative soreness to those causing fatal blood-poisoning may be due to nonaseptic technique or plain carelessness. The use of a contaminated needle or solution is inexcusable. The site of the injection should and must always be painted with a germicidal solution prior to injection, to prevent and/or avoid the transport of pathogenic surface organisms into the deeper tissues on the needle. An injection should never be made through an infected area, lest the pre-existing infection be spread into the adjacent and subjacent tissues. Symptoms of infection usually manifest themselves within 24 hours after injection.

Parasthesia: Parasthesia or prolonged anesthesia, result from direct needle trauma to a nerve trunk or from the use of a contaminated needle and/or solution.

Where ethyl alcohol is used for cold sterilization of glass syringes, parasthesia may occur if some alcohol remains in the syringe and is then injected along with the anesthetic solution. Local anesthetic solutions have not been known to produce parasthesia.

Needle Trauma: The patient experiences an immediate hot, flashing pain at the area involved. If a nerve is pierced or severed by a needle, permanent numbness may result, although regeneration with a return of sensation will occur if the severed nerve ends are in an end to end relationship. When a nerve is merely nicked by the needle, sensation will usually return within a few hours or days.

Ulceration: Traumatic ulceration of the skin and tissues may follow injection of an excessive amount of anesthetic solution. Cellular necrosis may occur due to the sudden tissue distention, and ulceration may ensue. Never use more than 5 cc. of solution for injection in one area.

Hematoma: A hematoma is produced by a misdirected injection, where the needle strikes a vein. Immediate extravasation of blood into the tissue spaces results, and is self-limiting by the pressure produced. The patient should be told that a black and blue mark will result in the area. Hot applications on the area will help clear this up.

Toxic Effects: These are rare and are due to idiosyncrasy or by injection into a blood vessel. There are 3 principal effects, and they are depression or paralysis of respiration, depression of circulation and the effect on the central nervous system. Mild toxic effects are manifested by nausea, tachcardia, vomiting, restlessness, and excessive talking. Acute toxic effects are manifested by syncope, respiratory depression and convulsions. Death may be imminent unless heroic measures are taken at once.

Treatment: Apply artificial respiration until oxygen can be administered. Intravenous injection of 0.5 cc. of 1-1000 Epinephrine®[4] and intravenous injection of Coramine®[5] are recommended. When convulsions are present 0.5 Gm. (7½ gr.) of pentobarbital should be administered intravenously if possible, or intramuscularly otherwise.

®[5] Ciba

Tachycardia: The vasoconstrictor content of the anesthetic solution is usually responsible for this. Patients with a history of angina pectoris or coronary occlusion should never be given local anesthesia containing vasoconstrictors. Also, at this point, we might emphasize the precaution, not to use vasoconstrictors when injecting the ends of the toes.

Broken Needles: These situations are usually due to faulty technique, rather than to faulty needles. When you encounter a broken needle situation, the patient must be informed of this accident. The removal of the broken needle should be performed by someone experienced in such procedures. It is well to be candid about this situation and avoid desperate and uncertain attempts at removal, because these cases can develop in medico-legal situations, especially when the practitioner tries to conceal the case.

The following sound precautions to avoid broken needle cases are: (a) Use 1½" stainless steel needles, no finer than 5 gauge for block anesthesia. (b) Discard old or dull needles. (c) Know the anatomic structures through which the needle will pass. (d) Warn patient to be absolutely still, but anticipate any movement. (e) Pass the needle directly and swiftly to the point of injection, so as to minimize the pain at insertion. (f) Never apply pressure to the needle shaft to change course of insertion. (g) Never insert the needle all the way to its hub. Leave at least ¼ of the needle shaft exposed to view. (h) Never attempt to sterilize a rustless steel needle by flaming, as this destroys the temper of the needle and renders it highly liable to fracture.

Summary

Post-injection complications of local anesthesia in chiropody-podiatry practice are generally avoidable when proper caution and technique are applied. If complications do happen or are unavoidable, prompt and proper treatment will avoid serious complications, legal and otherwise.

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DIAGNOSIS AND TREATMENT OF LOCAL ANESTHETIC REACTIONS*

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CONTRARY to common belief, a true allergy to local anesthetic drugs, which results in severe anaphylactic reaction and death, is extremely rare. It is safe to say that 99% of the reactions to procaine or similar drugs is due to the absorption of a sufficient amount of the drug into the blood stream to cause symptoms of toxicity. The symptoms vary in degree in direct proportion to the blood level and the rapidity of its attainment.

Recent studies indicate that, in general, local anesthetics are central nervous system stimulants, and supratherapeutic concentrations stimulate the cortex and other higher levels of the brain and at the same time depress the medulla and the pons. In a given case the effect of these concomitant processes depends upon the degree of overdosage. If the overdosage is minimal, the stimulant effects predominate; if the overdosage is massive, the depression of the respiratory and other medullary centers become manifest. Toxic doses of local anesthetic drugs also depress the myocardium directly and the peripheral vascular bed to produce vasodilitation.

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Factors Influencing the Toxicity of Local Anesthetic Drugs

There is little question that reactions following the use of local anesthetics are most frequently due to a relative or absolute overdosage. This is influenced by: (1) patient's general condition, (2) the concentration of the anesthetic and the total dose administered, (3) the rate of absorption from the site of injection, (4) the rate of detoxification of the drug by the liver, and (5) inadvertent intravascular injection.

Patient's General Condition: Individualize the dose of the local anesthetic drug to avoid overdosage. The so-called average dose must be reduced for patients in poor physical status due to hypovolemia, chronic anemia, acid-base imbalance and any form of hypoxia. It is necessary to reduce the dose in elderly people.

Total Weight of Drug Injected: For the average healthy individual there is an average dose by weight for each drug. This dose should be adjusted to the patient's physical status, age, state of nutrition, and other factors affecting his metabolic state. Any excess must be considered an overdose and likely to be followed by untoward reactions.

Concentration of Solutions: It must be remembered that all local anesthetic drugs are toxic and the toxicity increases in a geometric ratio as the concentration of the drug increases. A 2% solution is not just twice as toxic as a 1% solution, but about four times as toxic. The great importance of employing the weakest concentration that will give adequate analgesia thus becomes apparent.

Rate of Injection: Toxicity is directly proportional to the rate of absorption and the rate of destruction. Rapid injection causes increased absorption of the drug irrespective of the vascularity of the area and increases the toxicity of the local anesthetic agent.

Intravascular Injections: The reaction appears within a few seconds after injection of the drug and is characterized by abrupt and complete deterioration of circulation and respiration. The patient is usually dead within a minute or two.

Toxic Reactions to Local Anesthetic Agents

Central Nervous System Stimulation: A multitude of reactions can occur. The more common are apprehension, nervousness, restlessness, tremors and twitchings. If cortical stimulation is more pronounced, generalized clonic convulsions may occur.

Treatment: As soon as signs of central nervous system stimulation become apparent, oxygen therapy should be administered at once. If convulsions progress, an ultrashort-acting barbiturate should be given to arrest these tremors or convulsions, thus minimizing the depressant side-effects of the barbiturate.

Central Nervous System Depression: Central nervous system depression may follow or accompany stimulation. The faculty of speech is lost before the onset of unconsciousness and serves as a useful warning sign. In addition to the loss of consciousness, central nervous system depression is characterized by flaccidity, relaxation, and respiratory and vasomotor depression. Central vasomotor reactions are characterized by fainting, pallor, cyanosis, palpitations, and precordial discomfort and bradycardia.

Treatment: Treatment of central nervous system depression is directed toward the maintenance of adequate respiration and circulation. Assist respiration with oxygen and a rebreathing bag, adequate airway, and the use of vasopressor drugs (Vasoxy®[1] or Wyamine Sulfate®[2]). Respiratory stimulants are absolutely contraindicated as this condition is the end point of overstimulation. Treatment of the cardiac arrest and the collapse of the peripheral vascular bed is the same as that for depression and must be treated by relieving the hypoxia by use of vasopressors, oxygen, and forced respiration.

[1] Burroughs, Wellcome & Co. [2] Wyeth

Reactions Not Due to the Local Anesthetic Drug

Psychomotor Reactions: A number of so-called reactions cannot be attributed to the drug itself. That some of these reactions are psychogenic is demonstrated by those patients who faint at the mere sight of the needle or on account of the trauma of the skin puncture before any solution has been injected. This reaction is a neurogenic or psychogenic type of shock. Therefore adequate psychic sedation is a matter of prime importance.

Vasopressors: Toxic reactions to epinephrine manifest themselves by tremors, anxiety and nervousness, palpitations, precordial distress, tachycardia, increased rate of respiration, and a rise in blood pressure. Tachycardia denotes an epinephrine reaction, whereas bradycardia would lead one to suspect a reaction due to the local anesthetic drug itself. Maximum vasoconstriction can be obtained with a 1:200,000 dilution of epinephrine and any excess will only serve to increase the toxicity without appreciably enhancing the vasoconstrictor action. Epinephrine is contraindicated in coronary disease, hyperthyroid patients or in vasolabile subjects. Treatment is along symptomatic lines and must include oxygen administration by mask and bag.

Equipment

Minimal equipment that should be instantly available whenever one intends to use analgesia of the types under discussion includes a tank of oxygen, a reducing valve, a mask and rebreathing bag, a pharyngeal airway, a vasopressor drug and a soluble barbiturate. These precautions may be a lifesaving factor. The equipment may not be used for years, but if it is used only once and a life is saved because it was there for immediate use, it will prove its efficiency and value and should be in every chiropodist's office.

Summary

(1) The minimal concentration and amount of anesthetic which is compatible with optimal results should be employed.

(2) Those patients who are debilitated, cachectic, or otherwise possess a low metabolic rate and/or an impaired detoxifying mechanism should receive less than the average dose.

(3) Unless contraindicated, the patient should be given a preanesthetic dose of a short acting barbiturate to minimize psychic reactions and stimulation from anesthetics containing epinephrine.

(4) Proper technic of administration including repeated aspiration tests should be strictly observed.

(5) Following the performance of the block the patient should be observed and the blood pressure, pulse, respiration and color noted.

(6) An apparatus for the administration of oxygen and artificial respiration (rebreathing bag and mask), a fast acting barbiturate in solution and a vasopressor drug should be available for immediate use.

(7) Toxic reactions are far commoner than is frequently assumed. In the majority of cases they are of such mild and transient nature they tend to escape attention altogether. It therefore behooves the administrator to bear in mind that all local anesthetic agents have certain toxic potentials. Correct treatment without delay may prevent a needless death.

2510 W. 9th Ave.

Thou has given so much to us, give us one thing more—a grateful heart.

George Herbert, 1620

FOOT MECHANICS AND THE X-RAY*

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It seems rather elementary to establish the fact that the foot is a mechanism. Sometimes it is necessary to oversimplify a problem in order to bring the basic facts into sharp focus. The foot is a highly complicated structure involving many of the organic systems of the body and developing its dynamic status from the most complex physiological reactions of the muscle systems. However, when we reduce the foot to its basic form, it becomes an articulated machine designed to execute phases of gait and stance. The physicist and mathematician have applied all of the intricate laws of mechanics to an endless number of situations that are developed by the foot in its normal activity. Force analysis diagrams have been developed from radiographs of the foot and formulas applied to the situations to establish the equivalent of equilibrium and similar examples. This manner of determination is the tool of the research scientist.

Today we have been called upon to discuss foot mechanics and the x-ray within a very limited time allotment, and in order to convey some useful information I should like to make some very simple analogies that may emphasize the effectiveness of the x-ray as a clinical tool in establishing some basic facts concerning foot mechanics.

Our first problem is to rationalize the interpretation of the inanimate radiograph of the foot to the foot as a thing of mechanical value. To do this we might compare the inspection of an automotive engine to the clinical consideration of the foot. The radiograph is a veritable blueprint of the arrangement of the parts of the foot machine just as a mechanical drawing shows the plan of an automotive engine. In both cases it is safe to assume that the mechanical features will function properly if the parts are properly assembled and aligned. Furthermore, in both cases tremendous latent power is available because the master plan has been tested. With this comparison in mind it seems that the ostensible inanimate radiograph of the static foot is ready to spring into action instead of being a motionless view of a nonfunctioning foot.

The trained mechanic can detect a flaw in a new part with the use of a micrometer. The trained doctor can detect a foot structure that has functional limitations by his inspection of a radiograph. The doctor who allows analytical ability to channel into the factual realities of interpreting foot radiographs to the utmost values portrayed will learn to bridge the gap between an inanimate record to a fascinating portrayal of the potential ability of the foot to function.

All of our interpretations of radiographs of the foot are predicated upon a storehouse of anatomical and orthopedic knowledge. We must accept certain standards of structure and function as the basis for a normal foot so that we may say that a radiograph of that foot conforms to an interpretative pattern of normalcy. Although there are innumerable pitfalls in establishing a description of the normal foot, we have arrived at a practical concept of such a foot which holds up well on a statistical analysis. This foot pattern has unusual structural stability. The bony components are designed for maximum functional efficiency and they are aligned in perfect position. This we may visualize on the radiograph. All of the bones are of proper shape. The all-important mid-tarsal joint is in the alignment that every anatomist describes

*An informal paper presented as part of the American Society of Chiropodical Roentgenologists' Panel at the Annual Meeting of the American Podiatry Association, Washington, D. C., August 1958.

as normal. The talus is articulated atop the calcaneus for the proper seating of the leg bones and poise of the body. The bones of the forefoot follow in their properly aligned segments so that leverage action may be executed with economy and the phalanges are not distorted to interfere with their intended function. This is the normal foot skeleton that we see.

Let us bring it to life. It is a mechanism and it must move and perform a function. The complete muscle system must be attached to the foot skeleton and the critical actions achieved by this motivating power related to all of the foot motions and the way the individual bones are involved. This in essence correlates the radiographic morphology of the foot with its functional ability.

With these impressions in mind the busy doctor asks how may we apply x-ray findings to the cases in everyday practice? The x-ray study should not be an academic thing. It should be a strong practical agent to help the doctor make comprehensive decisions regarding cases.

It is our contention that although the radiograph is an objective record, it provides dramatic evidence that is necessary to coordinate the findings of the case in question. The more adept one becomes in visualizing the clinical aspects of a case from the radiograph, the more complete will be the correlation of all facets. It has been proven repeatedly that radiographic evidence cannot be disclosed through any other method. How can the slippage of a bone within the foot structure be visualized without a radiograph? The naked foot is a very gross representation of the detailed and intricate articular arrangements of the twenty-seven bones of the foot. Instead of a radiograph looking like an abstract outline of bones it should look like a clinical chart of the strength and weaknesses of an intricate mechanism, the case that is yours to solve. The foot radiograph should also indicate to you the steps that must be taken to rehabilitate it to an acceptable status.

It is a pity for radiographs to be made of a case in which there is failure to utilize the radiograph to its fullest extent from a practical standpoint. The doctor should study the radiograph and determine every feature that is of clinical significance so that he will be able to bring the findings in clear focus with the case at hand. It is necessary to adopt a systematic method of studying the radiographs in order to make it work to best advantage.

Take sufficient time to organize the case records and devote your complete attention to working up the report. It is best to have a view-box that will illuminate both feet at the same time so that a comparative study may be made. Begin the study by noting all of the patho-anatomical findings, preferably by listing them. From this list, a radiographic impression of the case should be summarized, and the conclusion established. The doctor must, through study of the material published on the subject, become familiar with all of the diagnostic features. There are no short cuts in gaining this knowledge, nevertheless one must develop a ready knowledge of this art. Perhaps the easiest system to follow is, first give the case its broadest classification such as pes cavus, acquired longitudinal arch depression, etc., then analyze the supportive findings, substantiate the impression and confirm the conclusion. This accumulated data should provide the groundwork for the application of the findings to the individual case.

The next step is to survey the orthopedic history of the case to determine facts that may be related to the x-ray findings. Painful areas should be related to the radiographic demonstration of the corresponding structural area. Data such as the mode of gait may clue the fact that a compensatory problem is present. A weight distribution chart should be available so that

every detail of this record may be correlated with the radiograph. This imprint should be made as the patient executes a progressive step so that the toe participation is recorded. When the imprint is made on a thin film of transparent plastic, it may be superimposed over the radiograph so that the relationship to the involved bony structure may be established. Incidentally, this procedure is now recommended in preference to the simultaneous imprint and exposure of x-ray paper technique because today we must conserve the amount of radiation exposed to every person.

With the completed x-ray diagnostic chart, the orthopedic chart, and imprint record available, the doctor is prepared to jot down a brief list of the x-ray findings that have clinical significance. This will be the fact sheet that correlates the evidence concerning the case into a Practical Case Management Guide for the doctor to use in arriving at a prognosis, developing treatment plans, discussing the case with the patient, and checking the progress of the case.

How does one go about organizing the fact sheet of x-ray findings with clinical significance into a Practical Case Management Guide? Basically two questions must be answered. What does the x-ray reveal has happened to the foot, and what does your orthopedic knowledge tell you must be done about it? Every case will present specific problems that need careful evaluation, however, it is the suggested policy to follow through a series of pertinent questions that apply to practically any case. I shall list the questions and add explanatory data to help tie the answers to the Guide.

1. Where is the foot faulty? (Diagnosis)
   a. Compare the faulty foot with that of a normal foot radiograph.
   b. Start at the hind-foot and check radiograph findings through the foot to the toes for correct or malalignment.
   c. Classify the faults.
   d. State the diagnosis.
2. What is the extent of the faults? (Diagnosis)
   a. Establish the degree of fault: Mild—only one major feature. Medium—several major features. Severe—severe malalignment of one or two major features. Extreme—extreme malalignment of any one or combination of features.
   b. Confirm degree of fault by comparing both feet.
   c. Arch height is a clue to a degree. Medium height most vulnerable.
   d. Ligament damage is gauged by the length of bone displacement.
3. How long have the faults existed? (Diagnosis)
   a. Change from original arch is a clue.
   b. Unusual bone shapes provide an important index:
   If a true exceptional bone shape is present the problem is congenital.
   If a bone is altered in basic shape by function it has probably existed since childhood.
   If a bone exhibits eburnation and bossed up joint lipping it has developed over a period of five years or longer.
   c. The degree of fault naturally indicates the chronicity of the case in most instances. However, a foot may rapidly undergo a severe breakdown when under exceptional stress.
4. How long will it take to rehabilitate the foot? (Prognosis)
   a. The answer is related to the degree of damage in most instances.
   b. When bone shapes are severely altered and malalignments are extreme there is practically no chance of restoring the foot to good conformity. However, every physical symptom must be treated until allayed, and adequate footgear and accommodative appliances utilized to make an extreme case a useful foot within its limitations.

5. What will be necessary to rehabilitate the case? (Treatment Plans)

   a. Balance orthopedic findings with x-ray findings and specifically select the appropriate treatment and the proper foot appliance needed to sustain the rehabilitation.

   b. If ligaments are stretched or damaged as shown on the radiograph by bone displacement, inflammation is present and must be allayed. The foot radiograph is not a mechanical drawing in every sense, it tells you where pain is.

   c. When foot alignment is faulty it should be drawn back into shape by taping, or set in an improved position by balance so that it will restore itself to shape.

   d. The shape of the bony pattern should suggest the shape of the shoes needed to accommodate the case.

   e. Every finding should be questioned.

6. What will complicate recovery? (Prognosis)

   a. Faulty bone shapes.

   b. Too severe a degree of ligament damage.

   c. Extreme malalignment.

   d. Pathology of bones and joints.

   e. An uncooperative patient.

   f. A poor diagnosis and inadequate treatment.

7. What should we tell the patient about the X-Ray Study? (Case Presentation)
   a. Do not overdraw the discussion. It will confuse the patient.

   b. Select a few important features that may be related to symptoms or intended treatment plans for discussion.

   c. Explaining that little initial alignment change provokes painful symptoms.

   d. If one foot exhibits greater change than the other be sure to state that often the painful foot is the one showing less x-ray change by comparison because it is the one now undergoing change, whereas the one showing greater change has become chronic and painless.

   e. If necessary show the patient a normal foot radiograph for comparison.

   f. Take this opportunity to tell the patient that sometimes the foot undergoes painful symptoms as it is changed back to an improved status.

   g. Give the patient a forthright prognosis and treatment plan based on the x-ray findings.

   h. If it is your early decision to use a foot appliance in the case, relate the x-ray findings to this need, if the findings bear out the type required.

8. What about Surgery?
   a. Obviously the x-ray study is necessary to diagnose problems that will require surgical reconstruction and should be used to full advantage in surgical planning.

To achieve a Practical Case Management Guide after surveying the case with these pertinent questions, only a limited number of features need to be listed. They should be succinct, understandable, and practical.

Summary

This brief paper has sought to emphasize the foot as a mechanism, correlate x-ray findings with clinical findings, and suggest ideas for using this data as a practical case management guide.

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ROENTGEN DIAGNOSIS OF SHORT LEG*

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THIS material represents additional work on the subject of posture with special reference to the short leg syndrome and its effect on balance, both in the feet and in the pelvis. Except in a few isolated instances, the medical profession has been quite lax in the value of good posture to health. This is a peculiar situation since both the public and medical profession believe that good posture is in some way related to health.

Man's early ancestors were creatures who navigated on all fours. All the gradual changes so that man could eventually walk erect on two feet have required many alterations of the skeletal framework. When man became a biped, major changes had to take place at the pelvis for his skeletal framework to now carry body weight in an erect position. It is a debatable question which is the weaker, the feet or the pelvis of modern man. Dickson has called attention to the great need for a clearer understanding of what he terms "functional anatomic relations of the human body." All diseases are not of an infectious origin and some will fall into a group whose causative factors may be anatomic abnormality such as short leg, faulty function or failure of the human body to adapt itself fully to some change. There is little doubt that posture is an important factor in the human machine and that good posture can decrease energy loss from faulty body mechanics.

A person, normal in every respect except for a short limb up to about ½", can compensate for this difference by tilting the pelvis, thus forcing one hip higher than the opposite one. Differences of ½" or more require lifts in the shoe or outside the shoe, or a structural scoliosis will follow with abnormal strain and undue fatigue.

*Paper presented at Annual Meeting of the American Podiatry Association, Washington, D. C., August 1958.

This paper will not cover the surgical approach to leg lengthening. We are limiting ourselves to the mechanical handling of this problem with shoes and prosthesis. Wilson (Annals Surgery 1946) states that shoe elevations often afford the best solution to the problem. Careful observation of the patient's gait with a raised shoe should always precede any decision as to operative treatment. In crippling conditions shortening is only one of several factors responsible for the disability. Ankylosis, deformities of hip, knee or foot, may be more disabling than shortening.

Whenever a variation in the length of either leg is found, the shorter member is termed the "short leg." Bailey and Beckwith used the expression "anatomical short leg," to describe one extremity which measures shorter in length from the head of the femur to the ground.

Before 1860, the entire subject of posture with special reference to the short leg symptoms did not appear in the medical writings. A London surgeon, J. Hilton, writing in a British Journal in 1863, gives an excellent case history of congenital unequal development of one leg.

Another observer, W. Hunt, writing in an American Journal in 1879, headed his article "Inequality in Length of the Lower Limbs," found absolute equality of both limbs to be unusual.

A. H. Tubby in 1912, writing on "Deformities of Bones and Joints," found only 20% of his cases had symmetrical leg length with variations from ⅛" to 1".

The development of the standing postural x-ray probably has been a major help in investigating the problem of short leg syndrome.

Etiology

In Schwab's report of several hundred

cases, he breaks down several factors with their percentages. He reported more than 50% of all cases in the literature had unequal development of the extremities. Over 20% were traumatic in origin following fractures. Dislocations of hip, knee and ankle added another 4%. Deformities of the sacrum were responsible for 3% of short legs. Various forms of arthritis contribute about 2% to the short leg syndrome. Weak, pronated feet 1%. This last figure seems very low in the light of work done by other men.

Other workers in this field, notably Downing, Atkins, Beal and Grant, in studying standing foot and pelvis x-rays believe that the foot may be the major factor in the case of the short leg syndrome. In Grant and Beal's series of 100 cases, more than 50% were found to have a lowering of the talus bone in the foot. Half of the cases with the depressed talus had a short leg on the same side. They also found a high percentage of pronated feet as a common finding with the depression of the talus. In a series of 10 cases, pronation was evident in 8.

Swift, writing in Clinical Osteopathy, states over 90% had short first metatarsals and displaced sesamoids in her cases. She states that anomalous skeletal defects in the foot are a major factor on body weight distribution and will affect leg length as viewed in a standing posture study.

Diagnosis

A short leg diagnosis should not be made until a careful history and examination is made and corroborated by standing postural x-ray evidence.

History

A persistent, chronic low backache is a very reliable symptom of a possible short leg. It usually follows heavy lifting, ironing, bending, a fall or some previous illness. These patients complain of legs and feet tiring easily, cramps may be present in the calf and a dull aching pain occurs frequently across the low back. These patients do not like to walk and never seem to be without some back, leg or foot ache.

Examination

Although not too reliable, one of the means still used to measure the length of the legs is the tape measure. The anterior superior spines of the ilia are marked with a pencil, as are also the tips of the medial malleoli. Any appreciable difference is noted and marked down. The patient is lying down during the examination. The discrepancy of this examination is that it presupposes the pelvis to be symmetrical.

In cases where a ½" shortage or more is present, a peculiar waddling gait is observed. Another fairly reliable test is to compare the gluteal folds on both extremities. The short leg will have a proportionately inferior gluteal fold.

In the examination for a shortage in the length of a limb, we should determine if it is a fixed or structural shortage, or a "pseudotemporary" or postural shortage. A structural shortage is a true shortage in one limb which can be measured from the pelvis (anterior superior iliac spine to the medial malleolus). This shortage does not change but remains fixed both at rest and on weight bearing. A postural shortage is a false temporary shortage in one limb which may be due to abnormal contraction of a muscle or a group of muscles of the one extremity producing a pseudo or transient shortage. Here, measurements from the pelvis to the med-malleolus are usually the same for both legs, but measurements from the umbilicus to the med-malleolus will give variation in length if the muscle contraction is still present.

One of the clinical examinations for a short leg that is corroborated almost 100% by standing pelvic x-ray is the one described by Schwab. The patient stands with knees extended and heels together. The examiner is at the rear of the patient and, while extending his arms, touches the index finger

on the iliac crests. The examiner's eyes should be on a plane level with his fingers. Any difference in height of the fingers is noted and reported. For a check the fingers are now placed at each of the greater trochanters. Now the patient is allowed to bend forward without bending the knees. If a shortage exists, the sacrum, posterior surface, will be definitely lower on the short leg side.

Schwab's clinical test was corroborated by Pearson for accuracy. In a series of 135 cases of short leg he found only two cases which did not show a lowering of the crest of the ilium exactly on the same side as the short leg. A study by Kerr indicates that without x-ray studies differences in leg length up to 1 cm. cannot be detected.

One of the primary factors to be considered is the selection of a proper technique for postural pelvic studies. The ultimate value of such a recorded picture will depend a great deal on a uniform technique. Without some standard technique, the value of lift therapy with follow-up films will be reduced.

Positioning Patient

We suggest the following: 1. Feet must be centered to line up with center line of standing wall Bucky. 2. Patient standing, and without shoes on, a truly level surface. 3. Feet placed at about 45°. 4. Patient stands erect and knees extended. 5. Instruct patient to let buttocks gently touch wall Bucky. 6. Shoulders and hips may touch the wall Bucky. With all the methods now in use for proper positioning some pelvic shift is present, but this effect is usually minimum.

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(Bibliography Continued on Page 196)

AN APPROACH TO LEG MEASUREMENT

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THE writer is aware that there are many techniques for the measurement of leg lengths and their differences. However, I would like to draw to the attention of the podiatrists, another accurate way to measure the exact length of the long bones of the lower extremities.

This is accomplished by the use of antero-posterior radiographs. Two 100 cm. rules, x-ray film (size 14x17), one cassette, two lead plates (each to cover ⅓ of film), two intensifying screens, a vertical device to slide the cassette up and down behind the patient for the various positions which are necessary, one front panel on which 2 cm. rules are mounted, and lead numbers, 1 to 10, mounted on the panel between the rules at a distance of every 10 cm. Also required is a platform on which the patient stands for taking the antero-posterior views of the ankles, knees and hips. The panel and vertical holder are attached to this platform. The x-ray tube-head is rail mounted and should be an integral part of the complete unit adjustable for all positions.

Procedure: The patient stands in front of the panel upon which the centimeter rules and lead numbers are located. The film is mounted in the vertical device (behind the panel), adjustable to the various positions of the ankles, knees and hips. Lead plates are inserted as needed for the various exposures. The cone is removed from the tubehead. Exposure is made at a 24-inch tube distance. Measure the part being x-rayed. The thickness determines the time of exposure. A calibrated scale will have to be set up for each machine. For our machine, at 15 MA and approximately 72 KV, we have made up Table I.

TABLE I

Thickness of Part Centimeters	Ankle Seconds	Knee Seconds	Hip Seconds
4	¼		
6	¼	½	
8	¼	¾	
10	½	1	
12	¾	1½	
14	¾	2	2
16		2½	3
18			4
20			5¼
22			6½
24			9
26			12
28			15
30			
32			

While the three exposures (hip, knee and ankle) are taken, the patient is instructed not to move. For all exposures the x-ray head is perpendicular to the part being x-rayed. The x-ray film behind the patient is moved for each position and the lead plates are changed.

The finished x-ray is divided into three parts. (See Figure 1.) The exposure at the ankles brings into view the inferior ⅓ of the tibia and fibula and the super surface of the talus. The second ⅓ of the x-ray brings into view the upper ⅓ of the tibia and fibula and the lower ⅓ of the femur. The third portion of the x-ray will show the head, the neck, and the trochanters of the femur, the pubic bone and other surrounding structures. Portions of the two centimeter rules are visible in each exposure.

To use the x-ray for the measurement of long bones, take the reading on the rule opposite the lowest point on the inferior surface of the tibia in exposure No. 1 (or ankle shot), and the highest point on the tibia in exposure No. 2 (or knee shot). The difference between these two points gives you the length of the tibia. To measure the femur, take the reading on the rule opposite the lowest point on the inferior surface of the lower ⅓ of the femur which comes to view in the second exposure (or knee shot), and take a second reading opposite the highest point on the head of the femur on the third exposure (or hip shot). The difference between these two points gives you the length of the femur.

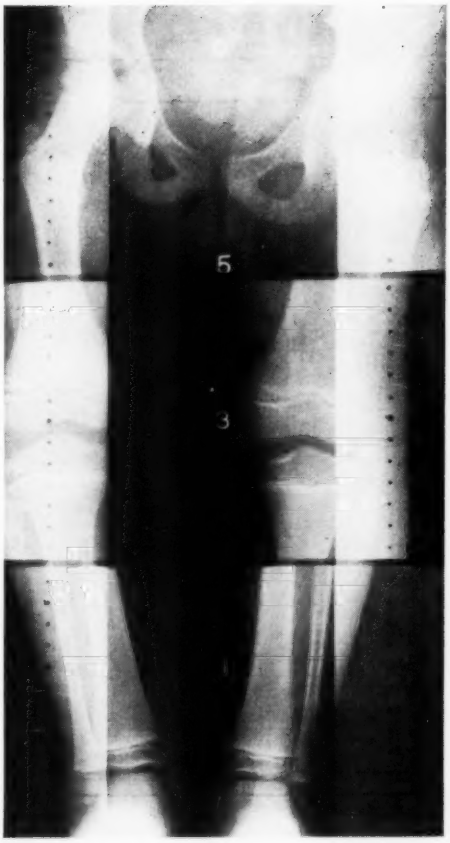

Fig. 1. Illustrating the three exposures on the one film. The numbers 1, 3, 5, 6 represent 10, 30, 50, and 60 cms. from ground (larger dots).

Should we find no significant difference in our measurements of the long bones

(tibia and fibula) but still find a difference in the measurement at the head of the femur, we should consider this difference to be caused by malalignment of the spine or a difference in an anatomical size and structure of the hip bone requiring referral.

By taking the reading opposite the ankle and the reading opposite the head of the femur, and by determining the distance between these two points, we get the length of the leg. By reading the rule opposite the superior surface of the talus, we can also determine the amount of deviation from normal caused by faulty foot structure. Table II shows the measurements developed for the x-ray illustrated in Fig. 1.

TABLE II

	Right	*Left*	*Difference*
Tibia	24.5 cm.	24.2 cm.	.3 cm.
Femur	30.1 cm.	28.6 cm.	1.5 cm.
Talus			.3 cm.

Talus: The *right* is .3 cm. higher from the highest point on the superior surface of the talus than the highest point on the superior surface of the talus on the left.

Total difference: 2.1 cm. (on left lower extremity) (short)

The measurements are those taken from the actual x-ray plate (size 14x17 inches).

Further information in regard to designing and building this equipment may be obtained by writing the author.

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CLINICALLY SPEAKING

A place for the more informal presentation of reminders, suggestions, notes, observations and technics of value in office practice. Your contributions of short manuscripts or illustrative case histories will determine this section's usefulness.

MARCH FRACTURE OF THE OS CALCIS
A Case Report

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At an Army basic training installation the podiatrists have an opportunity to see and handle many interesting traumatic foot problems. One of the most frequent among the basic trainees is that of march fractures. Although march fractures of the metatarsals, fibula and tibia are quite common, those involving the os calcis are fairly rare. This is a case history of a march fracture of the os calcis.

An 18-year-old white basic trainee was referred to our clinic* with the complaint of painful feet of one week duration. Pain was most severe in the area of right heel. Onset of complaint was sudden. Patient could not recall any injury to the area. "I woke up one morning and my ankle was all swollen." Weight-bearing was difficult on right lower extremity and patient walked with a limp, favoring the left foot.

On examination, there was limitation and pain on dorsiflexion. Other motions were within normal limits. The ankle was warm to touch. The ankle was quite edematous, with fullness to the posterior triangle. On palpation to medial and lateral surfaces of the os calcis, tenderness was elicited. X-rays were requested. Examination of wet films revealed no significant abnormalities.

The following day, patient returned and ankle was still symptomatic. Edema was quite prominent and on this visit patient described his pain as starting in the area of the first metatarsal and radiating to the os calcis. Our differential diagnosis was periostitis of the os calcis; acute Achilles tenosynovitis and acute retrocalcaneal bursitis. We prescribed an ace bandage, limi-

* Foot Clinic, U. S. Army Hospital, Fort Dix, New Jersey.

tation of duty, whirlpool, elevation and rest, a complete blood work-up and new x-rays.

5th day: Patient's blood report was: W.B.C. 5,900; Neutrophils 70; Lymphocytes 26; Monocytes 3; Eosinophils 1; Hemoglobin 13.4; Platelets 192,000; Hemocrit 41; Sed. Rate 7. Patient still exhibited a limping gait. Pain was limited to posterior triangle of the right ankle. On this visit, edema was minimal. Foot appeared cold to touch. Examination of repeat x-rays revealed a barely discernible fracture line in the superior portion of the right os calcis with minimal periosteal reaction. Impression—march fracture of the os calcis (Fig. 1 upper). A posterior Campbell strap was applied to right foot and leg. A 3/16" felt heel lift and a longitudinal pad was placed in right boot. Patient was put on light duty.

13th day: Another set of x-rays were taken. Examination of the right heel revealed a very fine fracture line in the superior portion of the right os calcis. There was also a minimal degree of periosteal reaction about the fracture site (Fig. 1 center). The same strapping was applied and patient was placed on light duty with limitations on marching, running and jumping for 4 weeks.

He was seen and re-strapped at weekly intervals. Although the swelling had completely subsided there was still residual pain on palpation and passive motion.

28th day: New x-rays were taken which revealed satisfactory progress of healing. The fracture site was considerably blurred and the immediate area was osteosclerotic (Fig. 1 lower).

36th day: Patient was again examined. The right foot was painful, but pain over the right os calcis had diminished. Daily whirlpool for 1 week was recommended. At this time strapping was discontinued and shoe paddings instituted.

The patient returned on 42nd day with right foot still symptomatic, but no longer any pain in the area of the march fracture.

Fig. 1. March fracture of os calcis. Upper—2 weeks after onset of symptoms (six days after first visit). Center—Three weeks after onset. Lower —five weeks after onset.

On 49th day new x-rays were taken which revealed a blurred fracture line through the superior portion of the posterior aspect of the articular process of the calcaneous. There was evidence of new bone formation. Progress of healing appeared to be satisfactory. Patient was discharged.

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THE PRESIDENT'S PAGE

I am quite sure that every rank and file member is inclined to feel that he is unimportant and that it is the responsibility of state and national leaders to solve the problems and make progress for the public and profession. In all probability that sort of thinking exists in other professions, too. Careful study and analysis, I am certain, would easily demonstrate the fallacy in that philosophy.

True, there are many problems. In every profession, state and national leaders try their best to cope with them. However, in final analysis, what really determines many of the answers to these problems is the reputation of the profession as a whole. This reputation is hard to establish; there are no short cuts. It is based almost entirely on the quality of service rendered to the public, and the integrity of the individual practitioner.

There are many facets to socio-economic problems; however, in my humble opinion, if we do become a country with socialized medicine, it will be because we, along with general medicine and dentistry, have failed to provide adequate medical care. Remember people "vote the incumbents out" of office and take a chance that they will be "voting in" someone better. So it will be with medical care. If socialized medicine comes, the public will vote out present medical care and take a chance on socialized medicine.

As individuals and as a profession, it is our responsibility to provide the best in foot care. We must not be satisfied with fifty per cent improvement when, with a little more diligence in treatment and diagnosis, eighty or ninety per cent rehabilitation could be achieved. Therein lies the direct responsibility of the individual practitioner to provide the best foot care.

Individual reputations in aggregate determine the reputation of the profession. The reputations of professions are not procured by newspaper advertisements nor by radio or TV. They must be earned!

Because we are pioneers in a long neglected field, we must be in a constant battle with ourselves, never complacent, ever the student possessing the will to do research and solve the unsolved, always seeking improvements in foot care and the prevention of foot disorders. These are our individual responsibilities as part of the medical team.

G. E. GUENZLER, D.S.C.

SOME QUESTIONS THAT NEED BETTER ANSWERS

From time to time someone asks your Editor's advice and suggestions on appropriate areas of study and research. Your Editor's reading has made him aware that the many recent advances in the basic and clinical sciences has probably raised more questions than it has provided answers.

Spurred by some direct requests your Editor has framed some questions which provide a basis for study in several fields. Each question suggests further questions and is probably divisible into many parts for adequate study. No list, and especially this one, is ever complete. However, here are some questions for which your Editor would like better answers than we presently have.

Is the physiopathologic difference between corn and callus due to the histological differences in plantar and dorsal skin, or other factors? How does the absence of sebaceous glands and the presence of a marked stratum lucidum affect this difference?

What are the details of the local vascular reflexes and arteriovenous shunts that influence local circulation in the foot and what are their effects on the general circulation? What are some of the biochemical and pharmacological reaction chains? What relationship does the distribution of the glomi in the digits and other parts of the foot have on local circulation?

What part do myotatic reflexes, initiated in the intrinsic musculature of the foot, play in gait and stance? Has the wearing of shoes by peoples of highly civilized cultures resulted in atrophy of the intrinsic musculature as compared with peoples of primitive unshod cultures?

How does the distribution of fascial and other ligaments of the foot and ankle relate to the stresses imposed on the foot during standing, walking and running? How well do the ligaments compensate for the structural deficiencies of the bony architecture known to occur in the foot?

What are the variations of bony architecture of the foot that will provide different patterns of resistance to the physical stresses imposed on the foot? In a specific variation in a given bone or part of the foot, what is the relationship to resistance to stress? Are some structural variations compensation for other structural variations? What are some of the intimate details of growth and maturation of the bones of the foot, individually and collectively?

What are the physical characteristics of some of the devices that are used to redistribute weight transfer patterns in the human foot? How do they redistribute weight stresses? What are the physical properties of some of the materials used in these devices and how do these properties relate to their effectiveness? How is leverage exerted by these devices? How does leverage (or thrust) differ from support?

What are desirable pharmacological properties of (a) emollients for senile dry skin, (b) anti-hyperhidrotics? How do the corticosteroid, vitamin solutions and other pharmacological agents produce their results when used in the treatment of excrescences?

(Continued on next page)

How important are the following factors in the incidence, care and epidemiology of fungus infection of the skin? a. Environment of the foot? b. Status of the skin and its appendages? c. Exposure to infection and auto re-infection? d. Hygienic and prophylactic measures? e. Properties of the fungi themselves, especially the ability to mutate and develop resistant strains? f. Antifungal agents? g. Skin conditioners? h. Pharmacological vehicles?

What is the incidence of recurrence of helomata following operative surgical approaches as compared with (a) palliative reduction and shielding, (b) protective devices, (c) introduction of intra or subdermal pharmacological agents? What is the physiopathology of the formation of the subexcrescence exostosis? What is the physiopathological process in the production of (a) hypertrophied nail lip, (b) incurvated nail border? What is the reason for the frequency in location of intermetatarsal neurinomata, especially in the third interspace?

What are desirable properties for shoe materials? for the upper? for the innersole? for linings? for counters? for outsoles? How does leather match these requirements? How do the various synthetic materials match these requirements, especially for outsoles? Does the use of cements on linings and other parts of shoes interfere (and to what extent) with porosity of shoe materials? Can a standard nomenclature for lasts, its parts and related terms be developed by agreement in the shoe industry and the medical and podiatry-chiropody profession? How rigid is a rigid shank? How flexible is a flexible shank? A.R.

EUGENE C. RICE, M.D.
1867-1959

Born in New York City, the son of a chiropodist-father, "Gene" Rice began his professional career at the age of 19 in one of Nehemiah Kenison's offices in Boston. In barely 10 years he had become the manager of that office, had established offices for Dr. Kenison in Philadelphia and Washington, D. C. and had finished a full 4-year course in medicine at Columbia University (now George Washington).

A born organizer, he took a prominent part in the early days of the National Association of Chiropodists, then turned his efforts to creating, with the help of Ernest C. Stanaback, president of the N.A.C., the Pedic Society of the District of Columbia (later the Podiatry Society) and pushing almost single-handed a law through the Congress. He became the first secretary of the Board of Examiners established by that law, continuing in that position for 24 years until the passage of a new law in 1940.

He was an interesting and provocative lecturer, appearing at many conventions and serving for a time on the faculty of the First Institute of Podiatry (M. J. Lewi College of Podiatry). A prolific writer, he authored chapters in the first textbook ever written, contributed to journals in this country and England. As a civilian consultant to the Navy he took an important part in designing a shoe for Navy personnel.

All this in addition to conducting a large practice and, in spare (?) time working devotedly in his church and a large, world-renowned Bible class.

We may not long remember these things but there are unnumbered souls who hold deep in their hearts the unadvertised acts of kindness that came from Dr. Rice. Firm and uncompromising where such qualities were needed, he was yet a compassionate and impulsively generous human being. He was particularly interested in young men and their problems. Acquainted with sorrow and struggle himself he was an understanding and practical counsellor. Men living today with sons and grandsons of their own freely and gratefully acknowledge that much of their success and happiness is due to his fatherly interest. One such, learning of his death in February of this year, wrote these lines:

"Those were trying times. I was at the point of despair. . . . To know that someone believes in you and is pulling for you is an indescribable moral boost."

A. Owen Penney

WASHINGTON REPORT

CONGRESS CONSIDERS:

Tax Deduction for Higher Education

Legislation has been introduced to grant a special tax deduction for certain expenses of higher education incurred by a taxpayer, his spouse, or his dependents. This would allow deductions up to 50 per cent of the cost of tuition, fees, and materials required in the course of study. This deduction would be treated the same as a legitimate business expense and would be deducted at the time that the taxpayer is computing his adjusted gross income.

National Science Academy

Many House members have proposed the establishment of a National Science Academy which would train scientists for Federal service in the West Point-Annapolis manner.

Forand Bill

Rhode Island Congressman Forand and many other sponsors have reintroduced this year an amendment of the social security program which offers hospital and surgical care for OASDI beneficiaries. This year's version permits a wider choice of doctors. It is likely that hearings will not take place until the second session of this Congress, at which time the association will again offer testimony.

FEDERAL DEPARTMENTS AND AGENCIES

HEW

Representatives of national organizations (including ours) were recently invited to an informative two-day meeting of this department on "What's New and Different in the Program and Budget of the Health, Education, and Welfare Department?"

1960 White House Conference on Children and Youth

The Council of National Organizations met recently in New York to formulate the plans for community, state and national participation in programs which will culminate in next year's Washington Conference. Our association was represented at the meeting. Governors of the various states have established committees to plan for programs at the state level. Our State Societies are urged to cooperate with their state's contribution to this important Conference. The theme of this Conference is "Opportunities for children and youth to realize their full potential for creative life in freedom and dignity."

1961 White House Conference on Aging

President Eisenhower, in addition to calling this Conference, has established at Cabinet level a Federal Council on Aging with Secretary Flemming of HEW as Chairman. Other members of the Council will be the secretaries of Agriculture, Commerce, Labor and the Treasury and the administrators of Veterans Affairs and the Housing and Home Finance Agency. The President has asked this Council to supply him by September 30th an appraisal of existing Federal programs affecting older persons. He said the report should recommend changes "to be considered in order to help extend the period of productive, healthy and comfortable lives for people in this group." The council also was directed to cooperate in planning this Conference scheduled by law to be held in January, 1961. Note: Copies of the Aging Act passed by Congress have been mailed to the president of each State Society. Programs at the state level are now being organized for this Conference. The Special Staff on Aging at HEW has requested information on programs by our profession which will contribute to this Conference.

State Department

The program of the American Podiatry Association, described in the Exchange-Visitor Program application dated Jan-

(Continued on Page 196)

PUBLIC EDUCATION INFORMATION

(Editor's Note: Periodically this section will provide information of assistance to the individual and to affiliated societies in the area of Public Education Information.)

LOOKING UP TO YOUR FEET*

PETER N. VARZOS, D.S.C.†
Chicago, Ill.

Absenteeism among employees is costing industry millions of dollars each year. Any health problem that keeps the worker off the job costs money, both in time and production to labor and to management.

That industry recognizes this is reflected in the rapidly expanding industrial or occupational health services on an in-plant basis, referrals to private care and follow-up for the employee records.

Health of the feet is important to the general well-being of the body, physically and emotionally. Anyone who has experienced painful feet will not dispute the fact that when "your feet ache, you ache all over."

Occupationally, problems of the feet present a hazardous picture. In otherwise good health, a worker can suffer physically and emotionally from tired, aching feet. He does not work efficiently; he suffers from headache, backache, and other related disturbances. Circulation of the blood is poor and inadequate. Because of these related aches and pains, the person is more prone to accidents.

The foot is made up of not just twenty-six bones and thirty-six joints. It has tissue, tiny veins, arteries and nerves. Neglecting the health of the feet can be as destructive as neglecting any other faulty condition of the body.

The care of the feet comes within the realm of Chiropody, a recognized ancillary branch of medicine, which has to do with the care of the human foot in health and disease. A synonymous term is Podiatry. No longer is the person practicing this specialty considered a "corn cutter." As nursing, medicine and dentistry have advanced, so has podiatry-chiropody. All phases of the basic sciences have been incorporated in the five-year curriculum to obtain a degree. Once licensed, a rigid state law governs the practice of a chiropodist-podiatrist. In addition, specialty boards exist within the framework of his national organization whereby (he) the chiropodist-podiatrist can further qualify in foot orthopedics, surgery and X-ray.

What happens when your feet hurt? One causative agent may be responsible, or many. You may discount the corn or callus, even the unsightly bunion, but these are painful symptoms that trouble is present. They are evidence that our machinery for locomotion is being tampered with.

Other painful discomforts come from warts, injury, congenital weakness or malformations, overweight, strains, sprains, excessive sweating, fractures, dislocations, ingrown and dystrophied toenails, hammertoes, blisters, bruises, chilblains, ringworm and disturbances in the circulation. Diseases, such as diabetes, arthritis and rheumatic fever produce systemic changes that result in painful feet.

Another culprit is the ill-fitting shoe, one that gives little or no support or mobility to the foot, or, conversely, provides too much pressure. Women are the greatest offenders. Because style is so important, they yield to the current vogue of narrow pointed-toe shoes. They squeeze their feet

*Reprinted from "What's New in Industrial Nursing," Vol. IX, No. 6, November-December, 1958. We believe the material here will be useful to many of our members who have occasion to speak before groups interested in industrial (and other) foot health.

†Public Information Officer, Illinois Chiropody Society.

into these tight compartments, restricting freedom of motion. They totter along on stilted high heels, toddling from side to side, every step a jar to the entire skeletal system. And they wonder why their feet hurt?

Normally the foot is flexible. Its bones and ligamentous structures are aligned and bound to form various arches that give us structural stability. The muscles are designed to give us equilibrium balance and joint motion in a rhythmical manner. Thus we achieve our postural stability in stance and our graceful mobility in gait. Sometimes these structures weaken. We lose our normal skeletal alignment (normal foot posture) and muscular tone and power. When this happens, conditions such as strained feet, weak feet and flat feet result which are common causes of leg pains, backaches, and early fatigue.

Generally the foot in stance bears our body weight in a relatively proportionate manner. The larger and more compact bones in the rear of the foot bear the major part of the body load. The remainder is diffused uniformly to the long bones in the fore part of the foot.

We know the toes play a very important role in the stance and locomotion of the foot. By their spreading and grasping action they enable us to balance on our toes, prevent turning on our ankles, and aid in the take-off phase in our walk, such as stepping from one foot to the other. In some persons the spreading action of the toes becomes diminished or lost. The cause may stem from weakened muscles and joint changes or because motion is restrained by the improper type and size of shoes and stockings. The toes, not being able to move, stiffen up the foot, causing excessive pressure and friction on the bottom of the foot. Then if there is an abnormally long or short toe, which is not uncommon, the result is an unequal weight distribution at the ball of the foot. Thus chronic calluses, plantar warts (Plantar keratoses) and other defects develop, all of which cause pain.

This is one reason why women who persistently wear extremely high heels are chronic complainers. The toes are being forced to take on the full weight load. The heel and metatarsal area are kept from sharing their burden of weight distribution.

What can be done to remedy aching, painful feet? First a thorough foot examination is imperative. X-rays and special tests may be essential to the proper diagnosis. Remedial or corrective procedures may involve mechanical, medical or surgical care.

By giving them proper attention, obtaining professional advice when necessary and using common sense, you'll find your feet will respond. Willingly, they'll take you comfortably and free from pain wherever you want to go.

In other words, look up to your feet.

25 E. Washington St.

WISCONSIN REPORT ON ITS PODIATRY PLAQUE PROGRAM

EDWARD C. MELDMAN, D.S.C.
Milwaukee, Wisconsin

Wisconsin had always been a "chiropody" state. When the national organization's name was changed to "podiatry," we knew we had a job to do.

The term "podiatry" was virtually meaningless in Wisconsin. Our first task was to teach our patients that "podiatry is the new name for Modern Chiropody." Our second task was to bring that message to the public.

The plaque idea was accepted by the executive board of our state society as a method of getting the podiatry message across quickly, briefly *and at little cost.* The plaque, 8½" x 5½" of plastic-encased bronzed metal foil, reads, "Podiatry, the new name for Modern Chiropody."

How Was the Plaque Program Started?

A "kick-off meeting" was called to award a Podiatry Plaque to each member, (at society expense).

The local press was invited to photograph the presentation of the first plaque to the president of the state society.

The idea proved to have news value.

The program started with state-wide member participation, and excellent publicity.

Each member received, also, 250 of the exact-scale miniature seals at the society's expense. Additional plaques and miniature seals were made available to members at cost.

Our slogan is: DON'T WAIT — EDUCATE patients to podiatry, NOW. It was suggested that a plaque be prominently placed in each treatment room and also in the reception and dismissal rooms of every podiatrist (chiropodist). Also a miniature seal placed on every letter, postcard, statement, and prescription, indefinitely. On reception room literature, especially magazines, a seal placed on the front and back covers, and several inserted strategically on inside pages of each magazine.

Thus every patient is being consistently, repeatedly, yet unobtrusively bombarded by the single message, "PODIATRY is the new name for Modern Chiropody."

What Are the Results of the Plaque Program So Far?

It is estimated that the "podiatry" message has been repeated over one million times to Wisconsin patients in the few months since the program started, in addition to the state-wide newspaper publicity, *at very little cost.*

Patient interest is much greater than was expected. Surprisingly, almost without exception they prefer the term "podiatry."

Some patients now openly confess that the term "chiropodist" had caused them embarrassment. One patient explained. "I believe in my foot doctor and I also believe in my physician. But it always bothered me that my physician wouldn't believe in my foot doctor mostly because 'chiropodist' sounds so much like 'chiropractor.' My physician likes the name 'podiatry.' So I'm glad the name was changed."

Here is another surprising patient reaction. Previously it was often difficult to convey to patients that Modern Chiropody had made great progress in scientific research and therapy. Now the name by itself seems to be accepted as a sort of symbol of progress. Questions asked by patients indicate a new level of respect for the foot doctor's role in the medical world. (A clinical psychologist has been retained to study and explain the unexpected patient acceptance of the new name.)

Can Other States Use the Plaque Program?

Yes. The same thing can be done in every state that is ready to publicize the new name. The Wisconsin Society of Chiropodists (Podiatrists) will gladly furnish podiatry plaques and seals to any society of the American Podiatry Association or its members. For more information, contact: PODIATRY PLAQUE PROGRAM, Dr. T. G. O'Halloran, Co-chairman, 523 E. Center Street, Milwaukee 12, Wisconsin.

161 W. Wisconsin Avenue

We failed to list on page 149 of the March issue, under Education and Information Materials, our Vocational Guidance Exhibit, "This Is Your Life." This exhibit is designed to inform young people and vocational guidance personnel about our profession, its opportunities and the professional education program. It is suitable for exhibition during "School Career Days," guidance personnel meetings, Parent-Teachers Association meetings, etc.

TECHNIQUES IN FOOT SURGERY

L. R. McCAIN, D.S.C., F.A.C.F.S., and
N. H. KETAI, D.S.C., F.A.C.F.S.
Editors, Publications Committee, A.C.F.S.

Illustrated case reports and discussions, suggesting approaches to podiatric surgery, from the files of the American College of Foot Surgeons.

SURGICAL CORRECTION OF RETROCALCANEAL BURSA

A MALE patient, age 35, was surgically treated in the hospital for a retrocalcaneal bursa and an osteochondroma at the posterior and lateral aspect of the calcaneus involving the right foot.

Subjectively this young man complained of a sudden onset of pain three days prior to the original office visit. This pain ran an acute course and the patient was unable to wear a shoe from the time of this onset.

Objectively the area involved was erythematous, only slightly swollen but extremely tender upon dorsiflexion of the foot. Roentgenograms indicated that the superior half of the posterior of the calcaneus was more vertical than it should be but also showed the presence of an exostosis at the area.

The urinalysis findings were as follows: color—straw; characteristics—clear; reaction—acid. Blood findings: W.B.C.—7,400; R.B.C.—3,950,000. Differential: Polys.—66, Oeos.—3, Stab.—3, Lymphs.—29, Mono.—2, V.V.R.L.—none reactive. Bleeding time—3'20", clotting time—5'41". Pre-operative blood pressure—110/60, oral temperature 98.6 F.

As immediate pre-operative medications administered were Scopolamine®[1] .4 mg., Nembutal®[2] 100 mg., Phenergan®[3] 25 gm.

The operative technique is as follows: A pneumatic cuff was applied at the mid-thigh and inflated to 650 mm. pressure. A 2" longitudinal incision was made lateral and parallel to the achilles tendon beginning ½" proximal to the superior surface of the calcaneus and continuing inferiorly ½" past the attachment of the achilles tendon away from the operative site. The posterior-lateral aspect of the right calcaneus was exposed by sharp dissection and the exposed longitudinal ridge of bone measuring 1½" long, ½" wide, 3/16" thick, was resected, using a chisel and a mallet. The subcutaneous tissue was approximated with four 2-0 chromic sutures. The skin was closed with 2-0 dermal sutures. (The pneumatic cuff was released before closure.) Telfa,®[4] sterile gauze squares, and ¼" thick foam rubber pad was placed over the wound. This was wrapped with sheet wadding as was the foot and the leg. Short leg cast was applied to the right foot and leg.

Immediate post-operative treatment was as follows: Patient was given Demerol®[5] 100 mg. every four hours for pain. The patient was seen on July 17 and 22, at which time it was noted the cast was intact and dry. Thirteen days post-operatively the cast was removed, the skin sutures removed and a sterile dressing was applied to the incision. The patient was seen weekly for a month and it was noted on August 31, that several subcutaneous stitches had not absorbed, and fragments of these sutures had worked to the surface. Immediately following the removal of these portions of sutures the incision healed and the patient was dismissed on September 4th.

®[1] Burroughs Wellcome & Co. ®[2] Abbott
®[3] Wyeth ®[4] Bauer & Black ®[5] Winthrop

The post-operative diagnosis was a retrocalcaneal, bursae and osteochondroma.

Comment: This case was chosen both because of its surgical interest and drawing attention to the fact that frequently chromic sutures, regardless of how fine, may cause embarrassment in a surgery within tissues and will cause sloughing rather than absorption. In this particular case, even though the area was cast and motion limited, sutures still did not hold and acted as a foreign body, limiting the healing.

L.R.M. & N.J.P.

OPERATIVE TECHNIC FOR SINUS CONDITION AND OSTEOMYELITIS

Mrs. E. K., age 69, was seen at the office complaining of an ulcer on her fifth toe, left foot. History revealed that she had this condition for approximately one and one-half years, with the toe being periodically infected and draining, and then apparently healing for a short period of time. Examination revealed a sinus of the fifth toe over the lateral side of the head of the proximal phalanx and base of the middle phalanx. Roentgenograms indicated an apparent osteomyelitis of the head of the proximal phalanx and the lateral side of the base of the middle phalanx.

Urinalysis was negative for sugar. Blood count indicated a slight increase in the W.B.C. Also, the R.B.C. was low, so the patient was given Reticulex Pulvules,®[1] Sig. 2 Pulvules T.I.C.

Patient was given 1½ grs. Sodium Seconal®[2] one hour preoperatively.

After aseptic procedure, anesthesia to the toe was effected by one cc. 2% Xylocaine Hcl.®[3] as a toe block. Hemostasis was effected by the use of a Martin Bandage.

Operative procedure was as follows: Two semi-lunar incisions extending from proximal to distal and enveloping the sinus were made on the fifth toe. The sinus and adjacent soft tissue were then removed by sharp dissection. The skin was retracted exposing the necrotic bone tissue. The head of the proximal phalanx was removed and the shaft end rasped smooth. The middle phalanx was removed. All deep necrotic tissue was removed. The wound was coaptated and closed with four interrupted 000 silk sutures.

One-half cc. Achromycin®[4] was injected into and around the wound. Sterile Telfa®[5] was placed over the wound and sterile dressing applied.

The patient was given six Empirin with Codeine No. 3 Tabs.®[6] Sig: One tab q.3h. if necessary.

Post-operative treatment was as follows: On the second post-operative day the outer dressing was removed and new dressing applied. On the fifth day, like procedure was used. On the eighth day, the sutures were removed and sterile dressing applied. On the thirteenth day debridement was done and cocoon dressing applied. The patient healed without incident and was dismissed on the eighteenth day.

Comments: These two case histories were reported because they are quite typical of destruction of bony tissue adjacent to chronic infection.

L.R.M. & N.J.P.

®[1] Lilly
®[2] Lilly
®[3] Astra
®[4] Lederle
®[5] Curity
®[6] Burroughs Wellcome & Co.

YOUTH FITNESS WEEK, MAY 3-9, 1959

Copies of a prepared talk on Youth Fitness may be obtained from the Washington office upon request. This has been made available by Dr. Edward Schwartzenfeld, University Heights, Ohio, who is a Regional Chairman of the A.P.A. Youth Fitness Committee. Price 20 cents.

PHARMACEUTICAL PREPARATIONS FOR THE PROFESSION

HARRY L. HOFFMAN, Ph.G., D.S.C.
Chairman, Council on Podiatry Therapeutics and Pharmacy

A column devoted to preparations, new and old, with emphasis on their value and uses in everyday chiropody practice. This is a regular monthly column prepared from information furnished by the pharmaceutical house. We invite questions, which we shall endeavor to answer, or obtain the answer.

V-Cillin
Penicillin V
V-Cillin K
Penicillin V Potassium

Description: An entirely different penicillin, *not* a modification of penicillin G. Distinguished by its stability in acid. On oral administration, more penicillin is available for absorption, producing significantly higher blood levels.

Action and Uses: Infections caused by streptococci, staphylococci, pneumococci and gonococci. Also for prevention of secondary infections and streptococcus infections in patients with history of rheumatic fever. Many infections previously treated with parenteral penicillin may be as effectively controlled with V-Cillin or V-Cillin K.

Administration and Dosage: 125 or 250 mg. t.i.d. May be administered without regard to mealtimes.

Contraindications: Sensitivity to penicillin.

Supply: V-Cillin K-Tabs No. 1830, 125 mg. (200,000 units), in bottles of 50; No. 1831, 250 mg. (400,000 units), in bottles of 24. V-Cillin-Pulvules No. 20 (green and gray), 125 mg. (200,000 units) in bottles of 50; No. 21 (green and gray), 250 mg. (400,000 units) in bottles of 24. Suspensions M-125, 125 mg. per 5 cc. teaspoonful, in bottles of 40 and 80 cc.; M-250, 250 mg. per 5 cc. teaspoonful in bottles of 60 cc. Drops, M-130, 125 mg. per dropperful (0.6 cc.), in bottles of 1.5 gm. (12 doses).

Also: V-Cillin-Sulfa (Penicillin V with triple Sulfas, Lilly) Tablets No. 1801, 125 mg. V-Cillin plus 0.5 gm. triple sulfas per tablet (bluish-green), scored, inscribed "Diskets," in bottles of 50; Suspension M-102, 125 mg. V-Cillin plus 0.5 gm. triple sulfas per 5 cc. teaspoonful in bottles of 60 cc. By Eli Lilly and Company, 740 S. Alabama Street, Indianapolis 6, Indiana.

Americaine
Ointment, Liquid and Aerosol

Composition: Topical anesthetic ointment containing 20% dissolved benzocaine. Americaine provides this exceptionally high concentration of 20% dissolved benzocaine for rapid, sustained effective relief from itching and surface pain; bacteriostatic and water-soluble, with no sensitivity reported in over 12,600 published clinical cases.

Americaine clear: dissolved benzocaine 20%, benzethonium chloride 0.1%, in a bland water-soluble base.

Americaine w/Neomycin: contains 5 mg. neomycin sulfate per gram plus 20% dissolved benzocaine.

Indications: Prompt relief from itching and surface pain. In dermatology: eczemas, skin irritations, urticaria, Herpes Zoster, poison ivy, poison oak, sunburn. In pediatrics: chicken pox, insect bites, first aid, abrasions, burns, cuts and rashes.

Administration: Apply liberally to affected areas. May be bandaged. *Do not use in eyes or on infants.*

Supply: Available in 2 types; Americaine Clear and Americaine w/Neomycin to com-

bat infection. Americaine Clear, one ounce tubes and one pound jars. Americaine w/Neomycin, ½ ounce tubes.

Americaine also available in liquid form and in Aerosol containers. Aerosol package especially handy in podiatry as a spray for topical anesthesia. By Arnar-Stone Laboratories, Inc., 225 E. Prospect Avenue, Mt. Prospect, Illinois.

Typical Prescription: Americaine Ointment . . . 30.0 Disp. Tube No. 1. Sig: Apply night and morning.

Actidil

Generic Name: Triprolidine Hcl.

Description: Antihistaminic. Each scored tablet contains 2.5 mg. of tripolidine Hcl. Each teaspoonful (5 ml.) of syrup contains 1.25 mg. of triprolidine Hcl.

Action and Uses: A potent histamine antagonist with maximum effect occurring about 3½ hours after ingestion and with duration of action of approximately 12 hours. For use in those conditions in which antihistamines are indicated such as hay fever, vasomotor rhinitis, allergic dermatitis and other manifestations of drug sensitivity.

Administration: Orally. Adults, 2.5 mg. 2 or 3 times daily. Children over 2 years of age, 1.25 mg. 2 or 3 times daily.

Caution: Drowsiness may occur in some patients after this product is taken.

Supply: Actidil—syrup, in one pint bottles; tablets in bottles of 100. By Burroughs Wellcome and Co., Inc. #1 Scarsdale Road, Tuckahoe 7, New York.

Prednyl

Description: Anti-inflammatory-analgesic-antacid combination. Each tablet contains prednisolone, 1.0 mg., saicylamide 320 mg., citrus bioflavonoids 33.3 mg., ascorbic acid 33.3 mg., and aluminum hydroxide 50 mg.

Action and Uses: A combination of steroid, analgesic antirheumatic, flavonoid, vitamin and antacid for use in the treatment of inflammation, pain and spasm in rheumatoid arthritis, fibrositis and other inflammatory conditions.

Administration: Orally. Dosage varies with the severity of the disease and the individual response. Usually the initial dose is 1 to 3 tablets 4 times daily and gradual reduction effected.

Caution: The precautions and contraindications of adrenocortical therapy apply.

Supply: Prednyl Tablets in bottles of 100 and 500. By Arlington-Funk Laboratories, 250 East 43rd Street, New York 17, New York.

ERRATA

Unfortunately some errors occurred in "The Functional Adduction of Gait in Childhood" by Milton K. Krantz, D.S.C., Vol. 49, No. 3, which altered the meaning of some paragraphs. May we suggest you make the following changes in your copy of the March issue of the Journal in order that the author's meaning will be clear.

Pg. 99, Para. 1, 1st sentence, "Functional *adduction of* gait,"; Line 8, "generally are not *fixed* disorders."; Para. 2, Line 2, "of *250* private patients,"; Pg. 100, Para. 1, Line 8, "into *outward* rotation"; Pg. 102, Heading should read, "Diagnostic Characteristics of Functional *Adduction* of Gait"; Pg. 103, Para. 1, Line 10, "thigh is thrust *outward.*"; Pg. 105, end of left column, "68 were functional (internal tibial torsion, internal hip rotation, or these two deformities combined) and 19 of adductional deformity type."; Pg. 108, Left Column, Last Para., Line 6, "is frequently marked by *genu* valgus"; Pg. 109, Left Column, Last Para., Line 3, "*celastic* Robert's shape braces."

DIGESTS FROM THE LITERATURE

Anyone wishing to read the complete article, if not available in your local library, may borrow it through interlibrary loan. A microfilm may be borrowed from the National Medical Library, Washington 25, D. C., or a photo-duplication may be obtained from that library.

CIRCULATORY SYSTEM

Atherosclerosis, M. Fishbein. Postgrad. Med. 21: 326-28, 1957.

Atherosclerosis has been widely discussed, especially in its relation to coronary thrombosis. Although known since 1580 B.C., the disease is alarmingly increasing in incidence, and especially among those in professional, business and intellectual occupations, and in those under stress of heavy responsibilities. Some researchers have found that hormone therapy reduces plasmachules, and also influences blood coagulation and fibrinolytic activity. Reports from many investigators lead to the conclusion that serum lipoproteins and cholesterol contribute to the development of atherosclerosis and that the endocrine glands may also play a role in such processes. Others claim that elevation of blood lipids precedes and predicts clinical coronary disease, rather than being a metabolic result of coronary disease.

Modifications in diets have been suggested and use of unsaturated fats instead of saturated fats. Intake of saturated fats is believed by some to be a more important role in causing a high coronary heart disease occurring under 65 years of age, than stress and strain, physical indolence, obesity, luxurious living, and tobacco. Others claim that with a proper spacing of fat intake over a 24-hour period normal levels can be maintained of cholesterol, phospholipids, and total fatty acids. Experimental studies have shown great increase in plasma cholesterol where subjects were placed on a high butter fat regime. But many of the claims made regarding causal factors are highly suggestive but not conclusive. The consensus is that fat-rich diets, while playing a part, are not the sole cause of atherosclerosis. The dietary aspect of the disease should not be overemphasized. Patients with atherosclerosis who have had attacks of coronary disease and who show through laboratory studies increasing amounts of cholesterol in the blood should be under the care of a physician who will prescribe nutritionally and medically according to the individual's needs.

An Apparatus for Buerger's Exercises in the Home, J. B. Jessiman. Ann. Phys. Med. 4: 26-28, 1957.

Patients with peripheral arterial disease, despite the threat of gangrene, may object to the exhaustive and boring nature of these exercises and their long duration. They are conducted in three positions in each cycle, from three to six cycles in each session, and two to four sessions a day—a total of 3 to 6 hours. A device is described which permits the patient lying in supine position to raise a leg, then lower it over the side of the bed without effort. It is built on the principle of the "pulley and cord." The equipment consists of a stable, inexpensive stand of wood or metal which is attached to a pulley, 15 feet of sash cord and a felt slipper adaptable to either foot. By use of this appliance a feeble patient while lying down is able to practice active ankle and foot exercises with little effort, thereby promoting beneficial exercise to the upper limbs. The patient's attention is kept keyed up to control the exercise. By

means of a clock nearby he is encouraged and relieved of tedium. The leg and foot should be kept wrapped and warm during exercise. A patient with arterial disease who was threatened with amputation of both legs, by conscientious persistence in these exercises with the aid of the pulley and cord apparatus a year later was able to walk one-half mile without discomfort.

DERMATOLOGY, ALLERGY & FUNGUS DISEASES

Trichophyton Rubrum Infections of the Lower Legs, P. Telner, F. Bland and P. Schofflocher. Canad. M. J. 77: 1033-35, 1957.

Three cases are reported of nodular lesions associated with folliculitis and scaly dermatitis of the lower legs caused by the fungus Trichophyton rubrum. The erythemato-squamous lesions are often accompanied by hyperkeratosis. Eventually some or all of the toenails become involved, appearing thickened, yellowish, and brittle. The infection in the feet is hard to control if scratching by the toenails causes repeated infection. The clinical picture may be confused with that of superficial thrombophlebitis, nodular vasculitis, cellulitis of unknown origin, and non-suppurative panniculitis. The feet and toenails should always be examined and search made for fungi when such lesions occur in the lower legs.

Cutaneous Effects of Soaps and Synthetic Detergents, R. B. Suskind. J.A.M.A. 163: 943-46, 1957.

The surface effects of soaps and detergents are: (1) lowering of surface tension; (2) reduction of interfascial tension; (3) increase in wetting power; (4) emulsification; and (5) deflocculation. Alkalinity of a soap solution causes swelling and softening of the superficial horny layers, but not significantly in normal use of soap for cleansing. Synthetic detergents mulsify skin soils and remove the oily layer of sebrum. Keratin changes produced by excessive immersion in soap solutions are not produced by nonalkaline synthetic detergent solutions, but are produced by detergents having a relatively high *p*H as compared with that of soap. Pathologic changes in the skin which can be produced by soap and detergents are: (1) chronic redness and fissures, (2) winter dermatitis appearing as superficial dry patches on various parts of the body, and (3) acute or chronic dermatitis from frequent immersion of the hands in a cleansing agent. Allergic reactions are rare.

The cleansing agent is only one of a group of causative factors; others are cold weather with a relative humidity; contacts with vegetables, fruits, meat juices, etc. and bleaches; other cleansing and polishing substances containing abrasives, excess alkali, or irritating petroleum solvents. In an experimental study a test was made by exposing one hand for 30 minutes twice a day for 2 weeks in a laundry detergent with a *p*H of 10.0 and a special laundry soap with a *p*H of 9.9. The hand serving as a control was immersed in tap water. The response was the same in both hands; a hand with a dermatitis did not become worse. Therefore, a diagnosis of dermatitis caused by soap or detergents should not be made without evaluation of all possible exposures and predisposing factors.

A New Protective Coating to Diminish Pruritis and Irritation of the Skin in the Use of Plaster Casts and Adhesive Strapping, R. T. Rosenfeld. Northwest Med. 56: 320, 1957.

Cotofilm, an anhydrous antiseptic preparation containing 17.5 per cent hexachlorophene in dried state forms a protective cellulose coating when sprayed on the skin, affords much relief from itching under adhesive tape and decrease in skin blisters and small furuncles formed under the

adhesive. It was used routinely in 600 cases of application of plaster casts and adhesive tape without causing any skin reaction attributable to this protective coating. But blisters may occur if the adhesive tape is applied with excessive pressure. No untoward reaction to the coating has been encountered.

Factors Affecting the Diffusion of Drugs from Vehicles to the Skin Surface, J. B. Shelmire. J. Invest. Derm. 27: 383-87, 1957.

The effect of five types of vehicles on the skin surface was determined, including oil-in-water emulsion, aqueous, water-in-oil emulsion, grease or oil, and nonvolatile water miscible. The factors are found to determine the rate of diffusion of a substance from a vehicle to the skin surface: the degree of hydration of the skin, or vapor pressure at the skin-vehicle interface, and the miscibility of the vehicle with skin secretions. Miscibility of the vehicle with sweat not only affects the hydration of the skin, but determines the rate of release of the drug from water-in-oil emulsions. Miscibility with superficial skin lipids is unimportant, possibly because the skin lipids are mostly dispersed in sweat at the skin-vehicle surface and do not form a continuous film. A water-soluble dye shows the greatest diffusion to the skin surface of vehicles which are easily miscible with sweat and maintain an aqueous skin-vehicle interface. An oil-soluble dye and vitamin A diffuse best from a nonvolatile water miscible vehicle which maintains the least hydration of the skin-vehicle interface.

Transport of Water through the Human Epidermis, J. W. H. Mali. J. Invest. Derm. 27: 451-69, 1957.

A study of the transport of water through excised skin was made to determine diffusion of water through the skin. The findings were as follows: (a) The layer determining the small permeability of the epidermis for water is the barrier zone between the living cells of the stratum spinosum and the dead cornified stratum corneum. (b) Water vapor permeates the epidermis of the soles almost exclusively through the ducts of the sweat glands, because of the great number of sweat glands in the sole. (c) Water molecules permeate the transition zone of the normal skin, probably by activation of diffusion. (d) The fats (cholesterols) in the barrier zone together with the tight keratin structure inhibit the diffusion of the water molecules through the membranes. The experiment corroborated the opinion of other investigators that the greater part of the water loss in insensible perspiration takes place by way of the sweat ducts through the skin. If and how the fats are bound, and how they are localized in the barrier zone, has not been determined.

DIABETES, GANGRENE

The Diabetic Foot, B. F. Fuller. Minnesota Med. 40: 233-34, 1957.

Ischemia is only one of several important factors in the diabetic foot. Infection is an important etiologic agent, usually starting as trichophytosis, with development of maceration and fissures between the toes and later, becoming secondarily infected with bacteria, extends into the foot. An abscess or osteomyelitis may be present also. A very important symptom often overlooked is anesthesia or hyperesthesia of the digital portion of the extremity, caused by diabetic neuropathy. Recognition of these factors is important before treatment is planned. Therapy must be directed toward the most important etiologic factor—not necessarily toward ischemia alone. Except in cases of emergency, such as an acute, fulminating infection, treatment initially is very conservative.

The factors to be considered in treatment are: (1) Infection is usually present to some degree and requires antibiotic

therapy. Infection of the superficial tissues is treated with continuous wet packs of saturated solution of boric acid. (2) Because ischemic tissues are very friable, excessive heat and cold must be avoided. If the foot is swollen, it should not be elevated, for this intensifies ischemia. (3) An abscess if present must be drained. (4) A roentgenogram of the foot should be made to determine the presence of osteomyelitis. If healing follows conservative therapy, the patient should be instructed regarding care of the foot to prevent recurrence. That is, foot hygiene including fungus control; avoidance of trauma through walking barefooted or wearing ill-fitting shoes; prevention of exposure to excessive heat and cold, and avoidance of self-medication of minor abrasions and fissures.

If the lesion does not heal and the extremity cannot be saved, various surgical procedures should be considered: (1) Amputation of several or all of the toes of a patient having recurrent infection and subsequent ulceration between the toes—but only in patients in whom the degree of ischemia is minimal. (2) Transmetatarsal amputation should be done when the amount of tissue loss or degree of ischemia seems too great to permit healing. In the presence of gross ischemia healing is rarely accomplished. At least one pedal pulse should be present, with no gross evidence of ischemia of the proximal portion of the foot, and no evidence of diabetic neuropathy or of osteomyelitis. (3) Higher amputations above or below the knee are done if the degree of ischemia is sufficient to prevent a lower amputation from healing. High amputation is necessary when a significant sensory impairment is present at the amputation site, which could cause the wound to break down. Amputation in a diabetic patient should not be done below the level of sensory impairment. (4) Lumbar sympathectomy is frequently used in treatment of occlusive disease in well-selected cases; it is rarely indicated in patients with a diabetic foot.

DRUG THERAPY

Drug Therapy for Causalgia, A. S. Edmonson and R. A. Calandruccio. Mississippi Doctor 34: 239-41, 1957.

Edema, fibrosis, osteoporosis and vasomotor disturbances with trophic changes of the skin frequently accompany causalgia, but also are present in peripheral nerve lesions unaccompanied by causalgia, and therefore are not essentially a part of the syndrome. A case is reported of a 14-year-old boy with burning pain over the dorsum of the left foot while in skeletal traction following supracondylar and midshaft fracture of the left femur and posterior dislocation of the left hip, accompanied by foot drop on the same side. Morphine failed to relieve the pain. About three weeks after the injury hexamenthonium brought almost complete relief within a few minutes. Pain recurred the following day and 10 mg. of dibenzyline were given four times a day. Within 24 hours he was comfortable enough to sleep but pain was not completely relieved. The daily dose was increased to 60 mg. with complete relief from pain given over a three week period. There was no recurrence in the next four months.

Another boy aged 11 had a gunshot wound in the right arm and a comminuted fracture of the distal one-third of the humerus, with partial nerve laceration. Within 24 hours after operation a severe burning pain developed in the entire right hand. Morphine did not relieve his agony; he could neither sleep nor eat. Cervical sympathetic block relieved the pain for 3 to 4 hours. A second block the next day brought severe reaction, but 25 mg. hexamethonium given intravenously brought immediate relief lasting for 2 hours. Dibenzyline 5 mg. four times daily did not afford

complete relief until the dose was increased to 15 mg. four times daily. Dibenzyline was dicontinued after 10 days. The pain returned about 2 weeks later. Sympathectomy was performed, bringing entire relief. It is suggested that hexamenthonium and dibenzyline may be valuable in diagnosis and therapy of causalgia, as previously reported by Fowler and Moser in 1956.

Hydrocortisone Acetate in General Practice, A. Katz. Med. World 86: 119-22, 1957.

Local injection of hydrocortisone can be used with safety by local injection and usually is followed by immediate, considerable relief of pain. The suggested dose is hydrocortisone acetate 12.5 to 5.0 mgm. (25 mgm/cc.), together with 1000 units of hyaluronidase to increase the local spread of the injection, and 1 to 3 cc. of 2% procaine. A single injection may afford complete cure; if not, two or more injections can be given at weekly intervals until complete recovery or maximum improvement is obtained. Given locally there are no aftereffects. The patient should be warned that severe local pain may follow as the anesthesia wears off, and may endure for 36 hours. The pain should be treated with simple analgesics. The drug is used in supraspinatus syndrome with or without calcification and subacromial bursitis; in tennis elbow, non-infectious bursitis, prepatellar bursitis, calcaneal paratendonitis, tenosynovitis, stenosing tenovaginitis, and in cervical fibrosis. Aseptic technique is necessary in giving the injection. A 5 cc. syringe and No. 12 hypodermic needle are used. The hydrocortisone is drawn up into the syringe first, and a single ampule of procaine used with each injection. Ampules should contain only enough for one injection. Collodium cotton is used to seal off the puncture wound. The drug may be given as an intra-articular injection in rheumatoid arthritis, gout, or osteoarthritis, but the injection should be carried out in a hospital under strict aseptic conditions.

MUSCULOSKELETAL DISEASES

Painful Foot, J. F. Drew. M. J. Australia 1: 239-44, 1957.

Description of the anatomy of the foot indicates that the normal civilized foot is essentially a static bony arch on which the short muscles are without function, whereas the long muscles are basically stabilizing or balancing in action. Muscles associated with the foot provide little if any propulsive action in walking, this being a function of the dynamic forces produced by the forward momentum of the leg. The first metatarsal is very important in the mechanics of walking and is concerned in certain disorders of the forefoot. If the second metatarsal is abnormally long it will be forced to bear some of the brunt of the take-off usually borne by the first metatarsal and great toe. Disabilities of the foot occur in the forefoot or metatarso-phalangeal joints, in the midfoot or tarsal joints, in the heel or calcaneus. Tension pain, pressure pain, and circulatory pain are described according to the site of origin and causal factors. Tension pain in the heel is often associated with heel spur and occurs through tension transmitted to the periosteal attachment of the long plantar ligament and accompanying inflammatory reaction. It may arise also in the midfoot from abnormal sheering or torsional strain on various interosseous ligaments or adhesion between tarsal joints.

Pressure pain occurs when the weight is placed on damaged metatarsal joints. A small amount of fluid within the joint causes painful distension if the joint capsule is distorted by external pressure. Nature provides a shield by forming a callus. Circulatory pain in the muscles is associated with arthritis or damaged joints be-

cause of circulatory changes in patients standing long in one position, in those wearing tight shoes, and those with varicose veins. More than one factor may be involved in chronic foot pain. Treatment depends on accurate diagnosis of the etiology. Local therapy consists of use of physical aids according to the part affected: forefoot, midfoot or heel. Some common disabilities can be relieved by wearing thick cork soles. The material is tough but with sufficient resilience to assume some of the jar from the foot during walking, and furthermore has good insulating properties. Special methods and practice details in the application of physical aids are described and illustrated. Physiotherapy consists of manipulation, application of heat, foot exercises, performed while sitting, standing or lying down. As exercise routine should be planned with consideration of the condition of the quadriceps. The value of mechanical aids in treatment lies in protecting and adjusting the foot during rehabilitation by physical medicine.

An Account of Some Fractures of the Talus, R. Daniel. M. J. Australia 1: 139-40, 1957.

Fractures of the talus are common, particularly fracture-dislocations. The neck of the talus is most often the site of the fracture. The condition resembles Pott's fracture and may be mistaken for it. The ankle joint is swollen and tender; the patient cannot bear his weight on the foot without great pain; plantar flexion and dorsiflexion are painful. Two types of cases are described. The first was that of comminuted fracture of the talus through midposition; the talus was dislocated, being rotated through 90 degrees and dislocated from the navicular, and attended by fracture of the cuboid laterally and of the calcaneus on the posterior and superior corner. The second was a combined fracture or other foot injuries in six miners who fell 70 feet to the bottom of the mine shaft. Two men not hanging to the handrail had compound lower tibia and ankle injuries but the talus was not fractured; another had fracture of the malleolus. Three men clung to the handrail of the cage and kept their feet off the ground; two of them had fractures of the talus; the third had trauma to the ankle joint but no bone injury. The two with the worst injuries of leg and ankle had a foot on the rail and the impact on the bottom of the mine had twisted their legs across the rail.

Posture and Pain, H. E. Gillette. J. Med. A. Georgia 46: 177-78, 1957.

Comfortable skeletal alignment depends upon three factors—stability of the feet, of the lumbosacral joint, and of the scapula. Disturbance of any one of these produces a secondary tension throughout the length of the body. In kyphosis, lumbar tissues and hip flexors are tight and strong while the scapula adductors, abdominalis and hip extensors are weak and stretched. In flat back posture there is a posterior tilt of the pelvis, tightening of the hamstrings and weakness of the hip and back extensor muscles. In stooped shouldered adolescents the scapula adductors are weakened and stretched and the pectoral tight. In the adult, fixed deformities of the cervical spine can cause cervical radiculitis with symptoms similar to those of cervical disc. Trying to straighten by assuming a military posture can cause tightness in the lumbar and lower dorsal areas and in the superior aspect of the shoulder girdle. The obese with sagging breasts and abdomen have a tightness of the hip extensors, neck extensors and lumbar tissues, and a weakness of abdominal and hip extensors.

Faulty use of normal structures is brought about by emotional tension, attitudes of depression, aggression, insecurity and guilt; by occupation, obesity, fatigue,

standing and sitting habits; poorly fitted shoes without good support, constant use of high heels; or sitting on a chair which does not allow good posture. The basic principles of maintaining back health are stability of the foot, lumbosacral junction, and scapula, with relaxation of the shoulders. Shoes should be long enough so that the widest part of the foot falls at the widest part of the shoe, and the toes allowed sufficient room for spreading. Foot stability can be obtained only with a firm sole and support across the instep, using metatarsal pads, bars and built-in arches inserted as necessary. Any height of heel is allowable for dress, but for routine wear should be low or medium height. Adequate length of hose is also important. Other helpful measures are use of a firm mattress, of a proper car-seat and chair providing an angle of 110 degrees between the seat and back, with flat support at the shoulder level, and maintenance of the normal lumbar curve by a normal amount of pressure.

NERVOUS DISORDERS

Neuropathic Arthropathy, T. T. Tamlyn. Minnesota Med. 40: 117-20, 1957.

A neuropathic arthropathy is described which is characterized pathologically by degeneration and hypertrophy and clinically by swelling, crepitation and instability, but without symptoms of pain. It occurs in a variety of nervous disorders. It is most common in the large joints of the lower extremities: the knees and hips are involved in tabes, the ankle and foot in diabetes, the elbow and shoulder in syringomyelia; the lesions usually are monarticular. Deformity and destruction may proceed slowly, or may develop rapidly. Numerous theories regarding pathogenesis of the disease have been presented. It is suggested here that combinations of the following have roles in the development of the disease: loss of proprioceptive sense, loss of muscle guarding and coordination, loss of pain sense, continued wear, and poorly understood metabolic derangements resulting from interruption of the various nervous modalities. Treatment consists chiefly of prevention of further damage, and preservation of weight bearing function—this is usually through use of external braces. Fusion is rarely accomplished, but internal fixation is occasionally satisfactory. Amputation when required may be followed by poor stump healing. Sympathectomy has brought improvement in two reported cases, probably due to improved blood supply, but was unsuccessful in a patient with diabetes.

PHYSICAL MEDICINE; REHABILITATION

Prevocational Medical Evaluation of Young Cerebral Palsied Adults, Shyh Jong Yue and R. C. Darling. Arch. Phys. Med. 38: 283-89, 1957.

Forty-four cerebral palsied patients aged 16 to 36 were medically evaluated according to their physical ability and mental assets. When these ratings were correlated with the results of vocational evaluation, they appeared reasonably predictive of the degree of proficiency shown in vocational testing. The spastic hemiplegics seemed to have the best vocational outlook; the athetoid quadriplegics varied from low to high ratings. These subjects and the diplegics showed less of the assets required for vocational training. Such integration of all findings can make a reasonable prediction of the vocational prospects of a young cerebral palsied adult, but certain factors may have some bearing on his performance, such as parental attitude toward him, his family situation, and his environment. Physical performance is first in importance since patients retarded mentally may be trained to unskilled work. Very intelligent patients may be so severely physically handicapped that they have no means of utilizing their capacity.

RHEUMATIC DISEASES: ARTHRITIS

Treatment of Osteoarthritis: General and Specific, E. Tuttle. New York St. J. Med. 57: 913-18, 1957.

Treatment of this chronic, intermittently progressive disease must be planned for each individual case. Supportive measures should be used together with reassurance of the patient, judicious use of rest according to the severity and extent of the disease, correction of nutritional deficiences, and establishment of endocrine balance. Medical, physical and surgical correction of joint defects is required to attain the best joint mechanics. Diet must be high in superior proteins (lean meat, fish, fowl, cottage-cheese); glandular meats should be eliminated; supplementary minerals given as needed, and any vitamin deficiency corrected by vitamin therapy. Hormones may be used as an auxiliary to nutritional therapy. Analgesics and antispasmodics are prescribed in capsule form: mephenesin, sodium salicylate, potassium para-aminobenzoic acid, ascorbic acid, sodium nucleate, glutamic acid, cortisone acetate, methadone. Physical therapy should consist of heat and water therapy and exercise; massage is contraindicated.

WASHINGTON REPORT Con't.

uary 6, 1959, has been designated an Exchange-Visitor Program as provided by the administrative regulations under the United States Information and Educational Exchange Act of 1948, as amended. Our program is officially described as follows:

> A program of the American Podiatry Association to provide special courses of study at accredited colleges of podiatry-chiropody selected by the Council on Education of the Association in the general interests of international exchange in the arts and sciences.

At the present time there is one applicant from a foreign country for these special courses.

U. S. GOVERNMENT PUBLICATIONS

Available from the Superintendent of Documents, Washington 25, D. C., U. S. Public Health Service—"The Industrial Environment—Its Evaluation and Control." A syllabus of short courses given for industrial hygiene engineers and chemists at Occupational Health Field Headquarters in Cincinnati. Sized 8½ x 11 inches and containing 364 pages—$2.75. Also, "The Mentally Retarded Child At Home." Children's Bureau specialist, Mrs. Laura L. Dittman, wrote this 98-page guide in response to requests from parents and private physicians—35 cents.

LEWIS Con't.

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ORGANIZATION NEWS

Secretaries of local, state, regional, affiliated, subsidiary and other related organizations are invited to submit copy for these columns.

CANADA

The Canadian Podiatry Association will present Dr. Marvin Steinberg and Dr. Ben Mullens on September 6-7, 1959 in conjunction with their annual convention in Toronto, Ontario. In addition to a fine scientific program, U. S. podiatrists will also be able to enjoy the Canadian National Exhibition and their world-famous grandstand show which has featured such personalities in recent years as Danny Kaye, Victor Borge, Bob Hope, Jimmy Durante, and others.

ILLINOIS

The Illinois Chiropody Society is holding its Second Annual Golf Tournament on Sunday, June 14th. This year's new feature will be an Out-of-State Division. Any member and his friends who play golf may enter by simply sending a verified score-card from any course at which they play and purchasing a ticket from Dr. D. F. Alexander, Central Medical Building, 5544 W. 25th St., Cicero, Ill. All proceeds will go to the Museum of Science and Industry fund in Chicago for a permanent foot health exhibit.

NEW HAMPSHIRE

At the February meeting of the New Hampshire Podiatry Association held at the Concord Highway Motel, Dr. E. Paul Fachada of Keene was elected President. Other officers are: 1st Vice President, Dr. Armand Brunelle of Manchester; 2nd Vice President, Dr. George Smith of Dover; Secretary-Treasurer, Dr. T. Levingston of Portsmouth.

Guest speaker for the next regular meeting will be the Executive Director of the New Hampshire Labor Union, who will discuss the relationship of Podiatry and labor under recognized medical-surgical insurance plans.

Awards for Research Papers

The Wm. J. Stickel Annual Awards
for Research in Chiropody (Podiatry) for 1959

Sponsored by the

Journal of the American Podiatry Association
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Fifteenth Year of Awards

1st Award - $400.00 — 2nd Award - $250.00 — 3rd Award - $100.00
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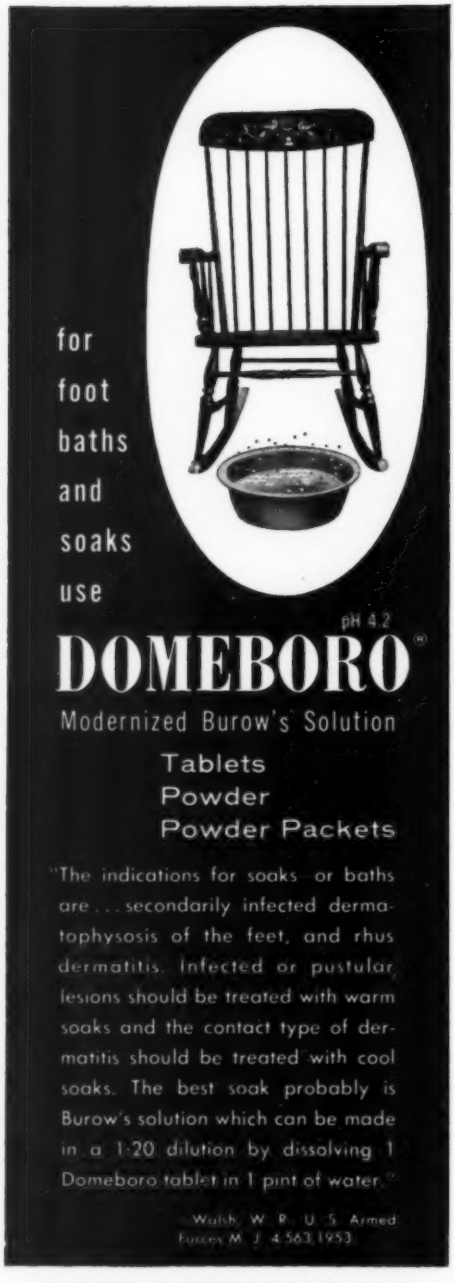
See Page A28 for Rules and Pertinent Information

THE DREW AWARDS

For research on the practical application of shoes to foot problems.
1st Award - $200.00 — 2nd Award - $150.00 — 3rd Award - $100.00

Application forms, rules and regulations can be obtained from the Secretary. The final date on which papers will be accepted is May 1, 1959.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Walsh, W. P., U. S. Armed Forces M. J. 4:563, 1953

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PENNSYLVANIA

Northwestern Division

A regular meeting of Northwestern Division was held Wednesday evening, February 25th, at the Exchange Hotel, Franklin, Pennsylvania. Dr. Leo Nelson presided. Following a banquet the business meeting was held. Dr. John Pankratz reported for the membership committee. He told of the distribution of the "Membership Issue" of the *Mid-Atlantic Journal of Chiropody* to all chiropodists in Pennsylvania, Delaware, and Maryland, member or not. He also urged that all those delinquent in their dues pay up at once. Dr. Ralph Orr reported on activities of the State Board and proposed legislation. Dr. Joseph Fletcher gave a detailed resume of the recent meeting in Harrisburg to hire an Executive Secretary and the plans for a final meeting in the near future. Following the business meeting a group discussion was held on Insurance Companies and the proper filling in of insurance forms. The next meeting is scheduled for April 8 at the Elks Club in Oil City. Dr. Joseph Fletcher will present a talk on "Training The Office Nurse," and Dr. Ralph Orr will discuss the F.A.A.C. The meeting was closed with a moment of silent prayer for the recovery of Dr. John Hamilton who is in the Cleveland Clinic with a serious illness.

Philadelphia Chiropody Society

The monthly scientific meeting of the Philadelphia Chiropody Society was held on Tuesday, February 17th at the County Medical Building. The evening's program was devoted to an open forum on Athletic Injuries involving the Foot and Ankle. Dr. I. Daniel Greenfield was the evening's program chairman.

TEXAS

The Chiropody Society of Texas, Inc. sponsored a dinner (second annual) for the Guidance Counsellors of the senior high schools and colleges of their region. Thirty counsellors were in attendance who represented approximately 42,000 students.

The program presented the following phases: Special Training for the Foot Specialist; State Board Examination; Recognition and Acceptance of Chiropody; Medical Specialty of Choice; Chiropody in General Medicine and Guidance in the High School and College.

Those attending requested our schools and national headquarters to provide their schools with annual catalogs, scholarship and other information to the Guidance Departments of the 17 schools represented.

MEDICAL LEGAL FORMS

Attention of our members is called to "The Counsellor" series distributed to members by the NAC Agency, Inc., our Insurance Administrators. They are being devoted to medical legal forms and will be mailed to members during this coming year.

The broadening scope of practice and increased activity on the part of members makes it imperative that they become acquainted with legal responsibilities and obligations. Failure on the part of our members to take cognizance of these responsibilities and obligations will be reflected in a higher loss of experience in our professional liability plans and consequent increase in rates.

APPOINTMENT

Dr. Roscoe Slack has been appointed honorary curator of Field Archaeology by the Board of Trustees of the Davenport Museum. This appointment was made in recognition of his services to the museum. Dr. Slack was a graduate of Illinois College of Chiropody in 1939.

PODIATRY-CHIROPODY AS A CAREER

The occupational monograph "Chiropody as a Career" has been revised and brought up-to-date.

The title on the cover has been changed to "Podiatry-Chiropody as a Career." For those who for various reasons prefer to have the term Chiropody, there are still a few thousand copies available.

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—Cooper, W. M.: Am. J. Surg. 65:475, 1948.
Non-raveling, firmly woven, thread-locked edge, 4" x 10 yd. flesh colored gauze bandage impregnated with glycerine, zinc oxide and gelatine paste.

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The inside title page explains that the two terms are synonymous. The contents throughout the book use both terms, and often the term foot specialist.

Several other small changes have been made including corrections in harmony with changes in the colleges and in the profession.

This monograph has been used successfully to create a better appreciation of Podiatry-Chiropody among medical men.

Many of the latter who had once opposed the members of our profession changed their attitude and, after they had read "Chiropody as a Career," recommended chiropodists to their patients. Quite a few state associations have found this occupational monograph very helpful to influence state legislators to pass favorable legislation for our profession.

To inform and to influence prospective students to enter one of our colleges, a copy should be sent to the guidance director of the smaller high schools, and both to the director and to the librarian of larger high schools. The best procedure is to give these personally. In this way, the doctor can get acquainted with the guidance personnel and volunteer to come again to give further information or to interview interested students.

Although the cost of paper, printing, and mailing has increased, the price of the monograph has been raised slightly only for purchases of 100 or more. The current prices beginning March 1 are as follows:

1 copy	— $ .75
10 copies	— 7.00
25 copies	— 15.00
50 copies	— 25.00
100 copies	— 45.00
500 copies	— 210.00

If a state association prefers, Park Publishing House will mail the monograph to individuals in quantities of 100 or more for $57.00 a hundred.

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(1) Noojin, R. O. and others: Am. Pract. & Digest Treat. *5*:186, 1954. (2) Edelson, E.: Med. Times *82*:37, 1954. (3) Peck, S. M. and others: A.M.A. Arch. Dermat. & Syph. *67*:263, 1953. (4) Ignatoff, W. B.: J. New Jersey Chirop. Soc., Apr. 1953.

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THE FUND FOR ADVANCEMENT OF PODIATRY-CHIROPODY EDUCATION

The Board of Directors of the Fund For Advancement of Podiatry-Chiropody Education has recently elected the following temporary officers:

President Pro-Tem—Harry I. Horowitz, Pod.D.

Secretary-Treasurer Pro-Tem—Seward P. Nyman, D.S.S.

The Board of Directors is composed of the following members:

President Elect of the American Podiatry Association—Marvin W. Shapiro, D.S.C.

Designated by Executive Council—Harry I. Horowitz, Pod.D.

Elected by House of Delegates—Stanford S. Rudnick, Milton Wolfson, Pod.D., Douglas Guthrie, Jr., D.S.C. (interim appointment to fill vacancy)

Designated by Council on Education—Max Speizman, D.S.C.

Designated by American Association of Chiropody-Podiatry Colleges—Harold E. Wheeler, D.S.C.

Designated by American Foot Health Foundation—Sidney Hirschberg, Pod.D.

Designated by Women's Auxiliary—Mrs. Lon H. Cooper.

The Board of Directors has requested each State Society President to designate a Chairman for the State and local program for the Fund. As of March 12th, the following State Chairmen have been appointed:

California—Robert Shor, D.S.C.

Georgia—James B. Stevens, D.S.C.

Idaho—John Chamberlain, D.S.C.

Indiana—D. E. Young, D.S.C.

Iowa—Vaughn E. Wicks, D.S.C.

New York—Milton Wolfson, Pod.D.

Washington—Charles A. Caggiano, D.S.C.

Wisconsin—H. R. Francar, Jr., D.S.C.

Lists of contributors to the Fund will be published periodically in the Journal.

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1959 HALL OF SCIENCE

You are cordially invited to participate in our 47th Annual Meeting. We will be pleased to receive your application for a Scientific Exhibit in the 1959 Hall of Science. The theme of this Annual Meeting will be "Health and Recreation Education for America's Youth." Exhibits need not be related to this theme. The Committee would appreciate being advised in the near future of your desire to exhibit.

On page A29 the Hall of Science Committee has provided all members with an application form for the Section on Scientific Exhibits for the 1959 Annual Meeting. You are urged to fill out this application and forward it to the Committee at your earliest convenience. Many Scientific Exhibits at recent Annual Meetings have been outstanding and again this year it is expected that the Hall of Science will merit the high praise and interest of all those in attendance.

The Hobby Lobby Exhibit and the Gadget Corner have been provided with ample space on the floor of the Exhibition Hall at the Waldorf Astoria. The Committee will be anxious to arrange for the proper displaying of your talents and skills in this section. All interested members are cordially invited to use the same form as provided for the Scientific Exhibits to apply for space for their hobby or gadget exhibit.

Gold, Sterling and Bronze Medal Awards will be made for the following:

1. Individual
   a. Class A (supported by grants-in-aid)
   b. Class B (unsupported)
2. Public Education and Information
3. Institution sponsored (schools, hospitals, specialty groups)
4. Junior and Senior High School students for outstanding health or science fair exhibits on foot health.

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APPLICATION FOR SPACE IN HALL OF SCIENCE, 47TH ANNUAL MEETING

Hotel Waldorf-Astoria, New York City, Aug. 29-Sept. 1, 1959

Application is hereby made to the Committee on Scientific Exhibits for exhibit space:

1. Exhibit on _____
   (state exact title of exhibit for program)
2. Description of exhibit: _____
   _____
   _____ "Prefabricated Yes ☐ No ☐"
3. Exhibit will consist of the following: (Check which)
   Charts and posters____ Photographs ____ Photomicrographs ____
   Drawings ____ Roentgenograms ____ Moulages ____
   Specimens ____ Other material ____
4. The following equipment will be used: (NOT SUPPLIED BY THE APA)
   Cabinets __ Viewing Boxes __ Microscopes __ Other Equipment _____
   _____
5. Booth requirements: (MAXIMUM SIZE PROVIDED IS 10′ X 7′ DEEP)
   "Number of spaces required ____"
   Minimum length of backwall desired __ Minimum depth __.
6. Has the exhibit described herein been shown in whole or in part at a previous meeting of the A.P.A., or at any other scientific meeting? ____ If so, when and where? _____
7. The undersigned agrees to abide by the regulations accompanying this application and to demonstrate the exhibit for portions of each day.
   Names and addresses of co-exhibitors (if any)

_____	_____
_____	_____
_____	_____
(Name)	(Address)
_____	_____
(Signature of applicant)	(Mailing address–street)
_____	_____
(City, zone and State)	(Date)

SUBMIT THIS APPLICATION AND ALL INQUIRIES TO:
Dr. Oscar Scheimer, Chairman, Hall of Science Committee,
47th Annual Meeting, American Podiatry Association,
10 Fairview Avenue, Westwood, New Jersey

---

1. The Association will supply the necessary space, furniture and lighting not to exceed one 110 volt outlet per exhibit. The Exhibitor must arrange for the assembling and dismantling of the exhibit.
2. Time: 9 a.m. to 5:30 p.m., Saturday, August 29 through Tuesday, September 1. The exhibits can be assembled any time on Friday, August 28th, and must be in position and assembled by Saturday morning. Exhibits may not be dismantled before Tuesday afternoon, September 1st.
3. Applications must be received by July 1st for inclusion in the Annual Meeting Program Book.
4. Shipping Instructions: All material should be shipped prepaid and addressed as follows:
   Exhibitor's Name and Organization
   c/o Exposition Drayage Division Inc.
   71-15–51st Avenue
   Woodside, New York
   For: American Podiatry Association Meeting, Hall of Science
   Material must arrive by August 27, 1959)

REPORT ON MEMBERSHIP

Dr. Harold W. Orr, President of the Chiropody Society of Delaware, recently wrote the following: "Try as I may, I cannot think of a single chiropodist who has an outstanding practice who does not belong to his various professional societies." To this we add: "Amen—truer words were never spoken." Membership is not a criterion to a successful practice but it certainly makes the attainment of this goal far easier.

Several State Society Membership Chairmen have asked us to list the many advantages that membership in our societies give to us. Space will not permit a complete index but the following will furnish an idea as to why it pays to belong:

1. Meetings: Local, State, and National meetings are open to all members. Conducted on a business and/or scientific basis they serve to keep us up-to-date on the complex happenings within our profession.

2. Journals: Membership entitles us to receive our State and National Journals which contain vital information of importance to all.

3. Insurance: We can buy protection for our practice, our families, and ourselves much more reasonably as a group. These savings alone will go a long way toward payment of dues, and in some cases exceed the dues.

4. Post-Graduate Courses: It has been said that without constant study we cannot better ourselves, or even stay as good as we are. Membership gives us the opportunity to participate in these courses of study which will improve our techniques so that we can provide for our patients the newest and best treatment.

5. Public Education: All practitioners benefit from good public education programs but this would not be possible except for membership.

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6. Legislation: As individuals we would not stand a chance to obtain legislation but as a group, working together, our rights to practice are protected and broadened.

7. Hospital Relations: More and more are we seeing our members accepted as full staff members in the leading hospitals. Most hospitals will not permit doctors to serve on their staff if they do not belong to their professional societies.

8. Conventions: Zone and National conventions are a must to those who would keep informed. Here we can combine business with pleasure, meet old friends and acquire new ones. Everyone returns home, after attending a convention, with a renewed vigor which is reflected in the eyes of his patient and his method of treatment.

To all of the above, add the fact that we are an acknowledged profession. Members now receive commissions in the Armed Forces. We have new ratings in the Veterans Administration Hospitals. We have a Vocational Guidance Program with ex-

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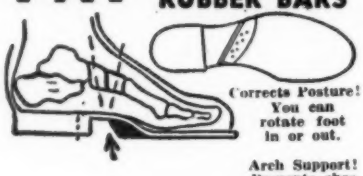

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hibits and new pamphlets. Each State Society is granted the free use of the new exhibits on Child Foot Care. We have a voice in the selection of our officers and leaders.

Here then we have an idea of what membership in our societies means to us. Tell your non-members about the advantages. Ask him to attend your meetings and show him how necessary it is that we all join together for the continued progress of our profession and ourselves.

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HOSPITAL SERVICE NEWS

PENNSYLVANIA

The Podiatry Department of St. Luke's and Children's Medical Center is establishing a regular program of post-graduate seminars for podiatrists in the Philadelphia-South Jersey area. These will be given by staff members of St. Luke's. For information, write to Arthur E. Helfand, Secretary, Podiatry Department, St. Luke's and Children's Medical Center, Philadelphia 22, Pa.

MASSACHUSETTS

Dr. Hugo J. O'Rourke, Peabody, Mass., has been appointed to the Staff of the Massachusetts General Hospital, Orthopedic Department, Diabetic Clinic.

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May Richstone
In the Rotarian

Herbert Hoover was once at a rather swank hotel where prices had gone up like sputnik. When he got his statement at the end of the week it was so high he immediately decided to check out. As he turned away from the desk he remembered some letters he had to mail. "Do you have any stamps?" he inquired of the clerk. "Yes, Mr. President. How many?"

"Well," answered Mr. Hoover cautiously, "I don't know. How much do you charge for them here?"

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The Army had got him, this bright young farmer. One day at his post overseas he got a letter from his wife. "How can I plant potatoes in the East 40 without help?"

His reply: "Whatever you do," don't touch that piece of land. That is where the guns are buried." As always in wartime, the letter was read by the censor. In due time another letter came from the worried young wife. "A company of soldiers came and dug up every inch of the East 40. What shall I do now?"

Quickly wrote the soldier, "Plant the potatoes."

Dr. Marvin Shapiro, our President-elect, has a Dalmatian dog that answers to the name of Bunion.

Psychiatrist to patient: "When did you first discover that you enjoyed paying your income taxes?"

Rotogram

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"When do you suppose they will come up with an injection to make them pay their bills?"

CONVENTION DATES AND MEETING NOTICES

American Podiatry Association
New York, N. Y., August 27-Sept. 1, 1959
Waldorf-Astoria Hotel
Michael I. O'Connor, Exhibit Manager
428 E. Preston St., Baltimore 2, Md.

Region One
(Conn., Maine, Mass., N. H., R. I., Vt.)
Boston, Mass., Sept. 25-27, 1959
Sheraton Plaza Hotel
Dr. Francis B. Powers
19 Dale Ave., Gloucester, Mass.

Region Two
(New York)
Mr. Gilbert Hollander, Ex. Sec.
353 W. 57th St., New York, N. Y.

Region Three
(Del., Md., N. J., Pa.)
Atlantic City, N. J., May 7-10, 1959
Ambassador Hotel
Dr. B. C. Egerter, Gen. Chairman
507 Liberty Ave., Pittsburgh, Pa.

Region Four
(Ohio)
Columbus, Ohio, May 21-23, 1959
Deshler-Hilton Hotel
J. Edwin Farmer, Ex. Sec.
Fifty W. Broad St., Columbus, Ohio

Region Five
(Ill., Ind., Mich., Wis.)
Dr. Earl G. Kaplan
14608 Gratiot Ave., Detroit 5, Mich.

Region Six
(Colo. Iowa, Kan., Minn., Mo., Nebr., N. Dak., S. Dak.)
Dr. Reid L. Cox, Gen. Chairman
409 Huron Bldg., Kansas City, Kansas

Region Seven
(Idaho, Mont., Oreg., Wash., Wyo.)
Vancouver, B. C., April 24-26, 1959
Hotel Georgia
Norm Matthews, D.S.C.
Suite 322, 604 Columbia St.,
New Westminster, B. C.

Region Eight
(D. C., N. C., S. C., Va., W. Va.)
Norfolk, Va., June 10-15, 1959
Aboard M. V. Arosa Sun
Dr. Irwin T. Domsky
2780 S. Randolph St., Arlington, Va.

Region Nine
(Florida)
Gainsville, Florida, May, 1959
Dr. Joy E. Adams
401 Florida Natl. Bank Bldg.,
St. Petersburg, Fla.

Region Ten
(Ala., Ga., Ken., Miss., Tenn.)
Louisville, Ky., Oct. 9-11, 1959
Brown Hotel
Dr. Chester A. Nava
4140 Shelbyville Rd., Louisville, Ky.

Region Eleven
(Ark., La., N. Mex., Okla., Texas)
Southwestern Chiropody Congress
Little Rock, Ark., June 17-20, 1959
Marion Hotel
Dr. W. C. Gigerich, Gen. Chairman
Arkansas Natl. Bank Bldg., Hot Springs, Ark.

Region Twelve
(Ariz., Cal., Nev., Utah)
Western Chiropody Congress
San Francisco, Calif., May 29-30, 1959
Mark Hopkins Hotel
Dr. Alfred G. Roos
209 Post St., #412, San Francisco 8, Calif.

Canadian Podiatry Association
Toronto, Ontario, Sept. 5-8, 1959
King Edward Hotel
Dr. L. Hurwitz, Exec. Sec.
3017 Bathurst St., Toronto, Ont.

West Virginia State Convention
Charleston, West Va., May 15-17, 1959
Daniel Boone Hotel

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Then Your
NATIONAL
House of Delegates, August 27, 28, 31, 1959
SCIENTIFIC SESSIONS, AUGUST 29, 30, 31, SEPTEMBER 1, 1959
WALDORF-ASTORIA HOTEL, NEW YORK, N. Y.

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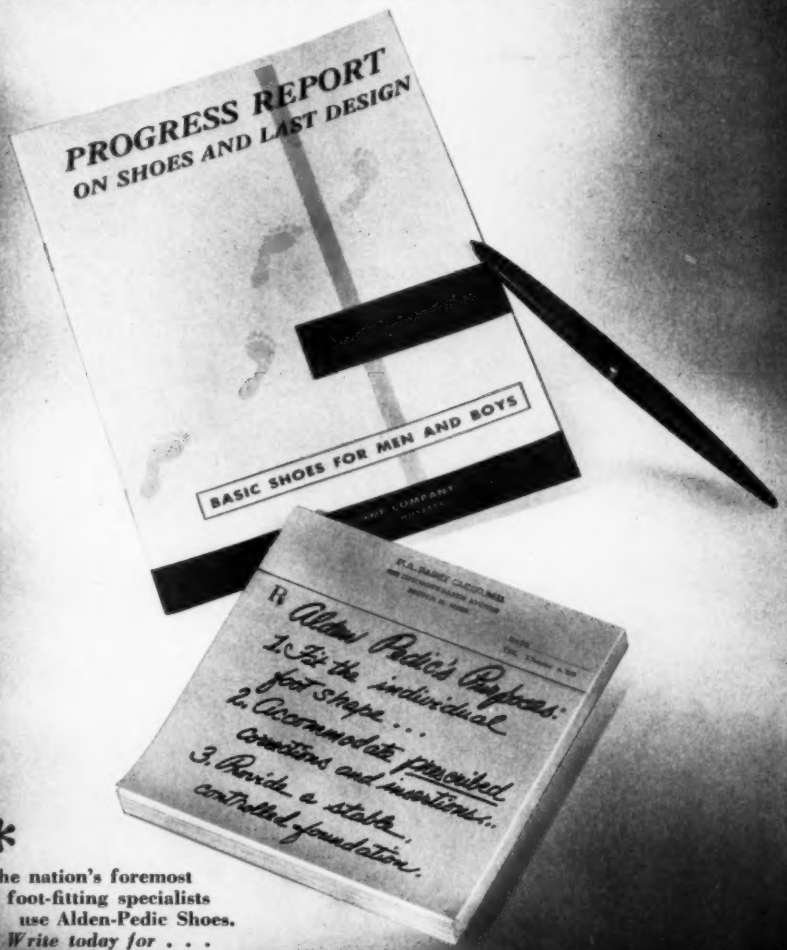
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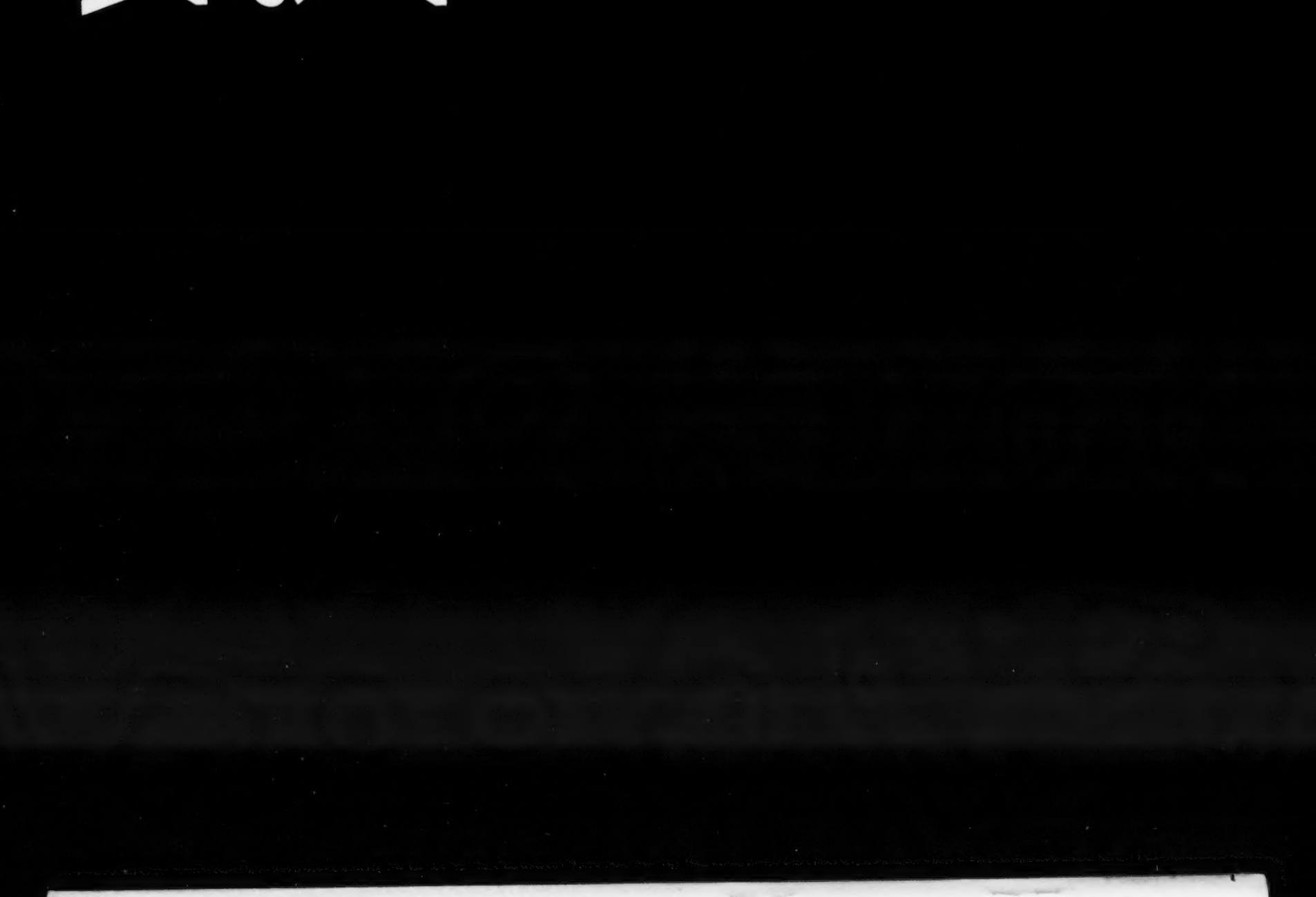
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